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INTERPRETATION OF ROENTGEN-RAY FINDINGS IN THE DIAGNOSIS OF PEPTIC ULCER

SOME DIFFICULTIES *

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One of the most important advances in the diagnosis of gastro-intestinal lesions has been the development and application of roentgenographic methods in this field. As is likely to occur when any method is devised which demonstrates new objective signs of disease, certain findings obtained by roentgen-ray studies create new diagnostic problems. Most important of the problems is the significance of roentgen-ray findings and their relative value, to those obtained by other procedures, in the diagnosis of gastric and duodenal lesions. These have been discussed in former communications.[1] Our purpose in this paper is to present some of the difficulties and errors into which roentgen-ray findings may lead in relation to the diagnosis of peptic ulcer.

Temporary muscle spasm occasionally produces distortion in the outline of the duodenum or stomach like that produced by an ulcer. An example of this condition is pictured in Figures 1 and 2. In this case the deformity pictured was present throughout one examination but absent in another made two weeks later, although the symptoms remained unchanged. When such deformities occur in cases in which the clinical findings are not those usual for peptic ulcer, the roentgen-ray studies should be repeated at a later date. At the second examination, especially if atropin has been given to the physiologic limit, the deformity usually will have disappeared. If this precaution is not taken, one may be forced erroneously to consider the presence of organic disease where it does not actually exist. This is illustrated in Case 1:

CASE 1.—Diagnosis, *gastric neurosis.*—F. R. G., white man, aged 32, salesman, with unimportant family and past medical histories, from February to November, 1914, had had attacks of slight dizziness with some nausea and occasionally vomiting, but no hematemesis, or bloody or tarry stools. The attacks recurred every two or three weeks and lasted for about half a day. In November, 1914, severe epigastric burning from two to three hours after meals began; this symptom persisted for two weeks. The patient was then placed on a diet by a New York physician, which was followed for several months with finally complete relief from symptoms. The patient remained well until the present illness, October, 1919. About the first of that month the onset of mild burning in the epigastrium, from two to three hours after meals, began. The symptoms gradually increased in severity until at the end of three weeks the patient sought medical advice. The appetite was good. There had been no vomiting. The bowels were constipated. There had been no loss in weight.

Physical examination was essentially negative.

Roentgen Report: The stomach was normal in position and tone. Its outlines were regular. There was active peristalsis, and the pyloric sphincter closed normally. There was constantly present a definite irregularity of the lesser curvature side of the first portion of the duodenum. Otherwise the duodenum appeared normal.

Interpretation: The findings are those usual in ulcer of the first portion of the duodenum.

Roentgen-ray studies were repeated in two days and again one month later. On both occasions the duodenum filled normally and its outline was regular.

Clinical Pathology: Gastric analysis was not made. The stools gave a negative benzidin test for blood. The usual examinations of the urine and blood were negative. The Wassermann reaction in the blood serum was negative.

Progress: Treated on the basis of a neurosis, without special dietary measures, the patient became free from all symptoms within one week. During this period he carried on business as usual. He remained well, while under observation, for the ensuing three months.

This case shows the value of cooperation between the roentgenographer and the clinician. The clinical history was not typical of ulcer, yet the first roentgen-ray findings were characteristic of that condition. The discrepancy led to a repetition of the roentgenographic examination. The result was such as to show that the first findings were transient, probably the result of temporary muscle spasm and not due to an ulcer.

There is a type of case in which a persistent duodenal deformity, resembling that due to ulcer, exists and yet is probably due to some cause other than ulcer, such as adhesions, congential or acquired. Case 2 furnishes an example of this:

CASE 2.—Diagnosis, *duodenal ulcer.*—J. J. C., Med. No. 11061, white man, aged 47, expressman, admitted to the Peter Bent Brigham Hospital, May 12, 1919, and discharged, May 15, 1919, complained of distress in the abdomen. The past medical history was essentially unimportant. Gastric symptoms began seven years prior to admission. The symptoms had occurred in periodic attacks, usually at intervals of about every two months and persisting for from one to six weeks. The interval between the last two attacks had been one year. The last attack began three weeks before admission, and was of the same character as the preceding ones.

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1. McClure, C. W.: Certain Diagnostic Aspects of Medicosurgical Diseases of the Gastro-Intestinal Tract, Boston M. & S. J. 181:399 (Sept. 25) 1919. McClure, C. W., and Reynolds, Lawrence: Gastric and Duodenal Ulcer: Typical and Atypical Forms: The Relative Value of Diagnostic Procedures, ibid., to be published.

Dull, aching distress in the epigastrium occurred at variable periods of the day or night, and without relation to food except for a tendency to appear just before meals. The distress was partially relieved by food and to a greater extent by soda. Belching of considerable amounts of gas was a prominent symptom. The appetite was usually good. There

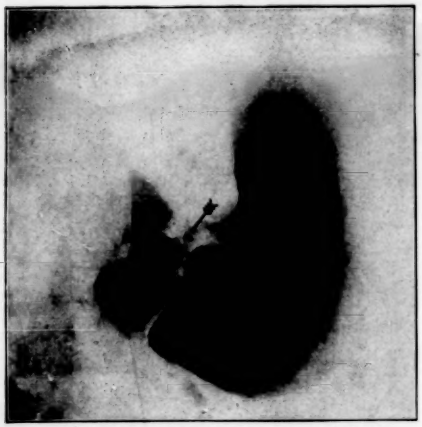

Fig. 1 (E. W., O. P. D. 60463).—Antral incisura, due to temporary muscle spasm, in a case of gastric neurosis.

had been no vomiting, no hematemesis, no jaundice, and no bloody or tarry stools. The bowels were regular. The patient was usually able to trace a connection between gastric symptoms and emotional stress, such as worry over business affairs.

Roentgen Report 14735 (Fig. 3): The stomach was normal in position, outline and tone. It was freely movable, and hyperperistalsis was present. The pyloric sphincter showed no abnormalities. The outline of the first portion of the duodenum was persistently irregular. The ileum was normal in position, freely movable, and contained the entire six-hour barium meal. At the twenty-four hour observation, the head of the barium column had reached the rectum. The cecum and the colon were normal. The appendix was not seen. A second roentgen-ray examination, one week later, gave the same findings.

Interpretation: The findings are those of either periduodenal adhesions or duodenal ulcer.

Clinical Pathologic Findings: The fasting stomach contents contained free hydrochloric acid, 15, and total acidity, 26. The guaiac test for occult blood was negative. After an Ewald test breakfast, free hydrochloric acid was 3 and total acidity 30.

The stools showed no occult blood. The Wassermann reaction in the blood serum was negative. The examinations of the blood and urine were negative.

Progress: The patient was in the hospital three days. During this period he was given the usual hospital soft diet and was free from all symptoms. After leaving the hospital he took a short vacation and then returned to work. In a letter, four months later, he stated that he had been free from all gastric symptoms since leaving the hospital.

That this case was one of duodenal ulcer cannot be denied, but the rapid recovery makes the correctness of that diagnosis problematic. This is emphasized by the failure to demonstrate at operation the presence of an ulcer in a case (Case 6, M. M. Mc., Med. No. 10448) reported elsewhere,[2] in which the clinical and roentgenographic findings were almost identical with those in the case just described.

Such cases as these demand intensive study and long observation. The patient's reaction to medical treatment is a practical guide to follow. It has been thought that rest in bed, combined with dietary measures, is indicated in all cases in which there is considerable evidence of the presence of ulcer, such as existed in the case just reported. That this line of therapy will often produce quick results is shown by the results obtained in this case. However, there are patients on whom exclusion from business works a great hardship. Since the correctness of the diagnosis of ulcer is somewhat questionable in such cases, it seems justifiable to try ambulatory treatment provided the patient is kept under close observation. That such a course is not only justifiable, in selected cases, but that good results may be obtained is illustrated by Case 3:

CASE 3.—Diagnosis, *gastric ulcer*.—F. E. M., Med. No. 8260, white man, aged 21, student, admitted to the Peter Bent Brigham Hospital, May 6, 1918, and discharged May 25, 1918, whose family history was unimportant, since early childhood had lunched between meals because of hunger; also, the bowels had been more or less constipated, frequently requiring the employment of cathartics. During the twelfth year of age there had been frequent nausea and vomiting immediately after breakfast. The patient was slightly under weight.

The present illness had begun one year prior to admission to the hospital. The predominating symptom was dull pain, occurring from two to three hours after eating, accompanied by belching. The pain was always in the umbilical region. It was relieved by taking hot water, soda or food. There was no night pain. The pain persisted for three months and then disappeared. It reappeared four weeks prior to admission, and was of the same character as during the first attack.

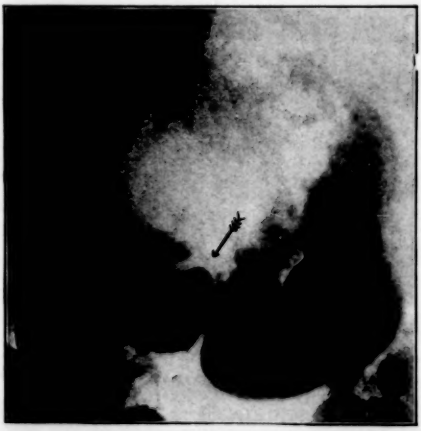

Fig. 2 (E. W., O. P. D. 60463).—Normal outline of antrum disclosed when stomach was roentgenographed two weeks later.

The physical examination was essentially negative.

Roentgen Report: There was a moderate six-hour barium residue. There was a deep incisura in the prepyloric region. The incisura extended from the greater curvature, and divided the stomach almost into two cavities. The incisura was present throughout the fluoroscopic examination, and was seen on the plates. No irregularities in the stomach

2. Footnote 1, second reference.

outlines were made out. The duodenum could not be more than partially filled.

Interpretation: The findings are due to muscle spasm, and suggest gastric and duodenal ulcer.

Clinical Pathology: Twenty-six c.c. of fasting gastric contents were obtained, and they contained some food

Fig. 3 (Case 2).—Irregularity in outline of duodenum.

residue. The benzidin test for blood was negative. After an Ewald test breakfast, free hydrochloric acid was 3 and total acidity 24. The stools contained no occult blood. The usual examinations of the blood and urine were negative. The Wassermann test in the blood serum was negative.

Progress: After admission to the hospital, the patient was placed on a Sippy diet. Within seventeen days he was able to take a general diet without producing symptoms. The patient remained free from symptoms until April, 1919. At this time there appeared fairly severe epigastric pain every few days about two hours after meals. This condition continued for three months; then the epigastric pain became more or less constant. It remained of fairly severe intensity. This condition continued for two weeks. Then the patient went into the mountains on a vacation. There he tramped and ate liberally of a general diet. In spite of this he quickly became free from all symptoms and remained so until December, 1919. There then appeared either fairly sharp pain or marked discomfort in the epigastrium two hours after food. The pain or discomfort was relieved by soda or food. There was occasional vomiting and some belching of gas. Roentgenographic studies were made at this time. The stomach was found to be markedly atonic and contained a medium sized six-hour residue. Aside from these findings, the gastro-intestinal tract presented no abnormalities. It was now learned that the patient was subjected to much nervous strain and that he had been so prior to the onset of his trouble in 1918. He was told that, although he probably had a gastric ulcer, his symptoms might all be due to a neurosis. He was given treatment for gastric neurosis and was instructed to eat liberally of a bland diet for two weeks, after which time he was placed on a general diet. Within a few days after beginning treatment the patient became free from symptoms and remained so one month later.

Two other cases were observed in which the symptoms were those of peptic ulcer, but the roentgen-ray findings revealed only gastroptosis and atony. As in the case just reported, these two patients became free from symptoms under treatment for neurosis. Whether or not these three cases were peptic ulcer could be determined only by operative methods. The subsequent courses of these cases and of Case 2 were like those of gastric neuroses. In all four cases the basis for a neurosis was present. On the other hand, the histories and roentgen-ray findings suggest the diagnosis of ulcer in two of the cases. The diagnosis in these cases must be left an open question in the absence of surgical exploration. But, as regards treatment, unless such cases quickly respond to other forms of therapy, it would be best to institute a medical regimen for peptic ulcer.

Roentgenographic findings may be very atypical and assist materially in the making of an incorrect diagnosis. Case 4 illustrates such an instance:

CASE 4.—Preoperative diagnosis, *malignancy superimposed on an old ulcer;* postoperative, *gastric ulcer and benign pyloric stenosis.*—J. C. B., Med. No. 11906, white man, aged 78, retired, admitted to the Peter Bent Brigham Hospital, Sept. 26, 1919, and transferred to the surgical service, October 14, entered the hospital complaining of "stomach trouble." The past medical history was unimportant. The symptoms consisted of anorexia, belching, and occasionally epigastric distress occurring from three to four hours after meals. The epigastric distress was temporarily relieved by soda or food. These symptoms had persisted with remissions and exacerbations for a period of six years. There had been no vomiting and no bloody or tarry stools. During the eight months preceding admission, distress from three to four hours after meals, flatulence and belching had been present continuously. There had been nausea occasionally, but no vomiting. During the latter three months of the present illness the patient had lost 35 pounds in weight.

Physical Examination: Other than the evidence of considerable loss in weight, the physical examination was essentially negative.

Roentgen Report 16090: Two fluoroscopic examinations were made. The stomach was dilated and atonic. Peristalsis on one examination was practically absent, while in the second it was vigorous and of the obstructive type. There was a constant filling defect in the region of the antrum, the margins of which appeared irregular in outline. The sphinc-

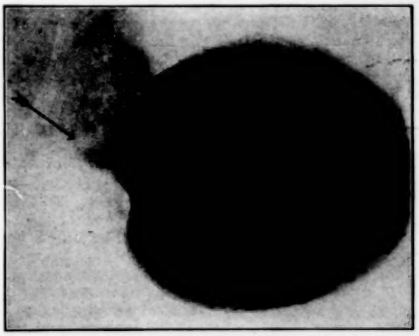

Fig. 4 (Case 4).—Appearance of stomach in a case that proved to be gastric ulcer and benign pyloric stenosis.

ter was not seen. Virtually the entire six-hour barium meal was in the stomach, and at the twenty-four observation the stomach was still outlined by barium.

Interpretation: The findings are those of a carcinoma involving the sphincter and causing pyloric obstruction.

Clinical Pathology: The fasting stomach contents contained remnants of food eaten fourteen hours previously.

Free hydrochloric acid was 10, and total acidity, 43. After an Ewald test breakfast the gastric contents contained, free hydrochloric acid, 40 and total acidity, 60. The benzidin test for occult blood was negative. Hemoglobin was 80 per cent. and the white cells 8,000 per cubic millimeter. The

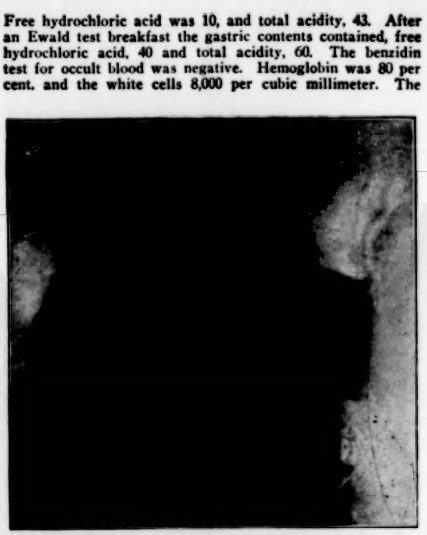

Fig. 5 (J. S., Med. No. 12180).—Stomach in a case of duodenal ulcer. Arrow points to the duodenum which, together with the region of the pyloric sphincter, was pulled upward by a congenital band of adhesions.

Wassermann reaction in the blood serum was negative. The urine contained no pathologic elements.

Surgical Note: The preoperative diagnosis in this case was malignancy superimposed on an old ulcer. At operation the pylorus was found to be obstructed by a mass of scar tissue resulting from an old ulcer, and no evidences of malignancy were found.

In this case both clinical and roentgen-ray findings were distinctly those of carcinoma, yet the case was one of ulcer. This case illustrates that even the most typical roentgen-ray findings do not necessarily make a correct diagnosis. A correct preoperative diagnosis does not seem to have been possible. The roentgen-ray findings are portrayed in Figure 4.

In a case of pyloric ulcer (Case 2, J. S., Med. No. 12180), reported in a previous communication,[3] the pylorus and duodenum were adherent to the gallbladder by a congenital band of tissue. In the roentgenogram the deformity produced obscured that due to the ulcer and gave the appearance of the presence of an extragastric process, such as a tumor mass or adhesions. The condition found is presented in Figure 5. The symptoms present in the case were those typical of gallbladder disease, and the roentgen-ray findings seemed to confirm that diagnosis. In this case the roentgen-ray findings led away from, rather than toward, a correct diagnosis.

There is a gastric roentgen-ray finding of which three examples have been observed. The finding consists of an area on the lesser curvature over which peristaltic waves do not pass (Fig. 5). No irregularity in the outline of the stomach exists. Case 5 is an example of such a case:

Case 5.—Diagnosis, *gastric ulcer*.—P. J. B., Med. No. 10993, white man, aged 46, watchman, a year and a half before, following a fall, had symptoms similar to the present attack, during which 15 pounds in weight were lost. The present illness began seven weeks prior to admission to the Peter Bent Brigham Hospital, and again followed mild trauma. The symptoms had consisted of burning epigastric pain coming on about half an hour after meals. Occasionally nausea had been present, but no vomiting. The patient had lost 12 pounds in weight during the present illness. The physical examination was essentially negative except for some tenderness in the midepigastrium.

Roentgen Report 14697: The stomach was normal in position, tone and outline, and was freely movable. The peristalsis was irregular and sluggish; at times three waves were visible. There was a small six-hour residue. On the lesser curvature, proximal to the antrum, there was an area in which no peristalsis occurred, although peristaltic waves were seen to pass over the greater curvature opposite this area. The same phenomena were noted on a second examination one week later. There was no irregularity in outline of the stomach. A good sphincter and first portion of the duodenum was seen. At the six-hour observation, the ileum contained the entire barium meal. The cecum was not seen.

The laboratory findings in the blood, urine and stools were negative. The fasting gastric contents were 34 c.c. in amount and showed no free hydrochloric acid. The contents removed after a test breakfast contained: free hydrochloric acid, 30, and total acidity, 45. There was no occult blood. The Wassermann reaction in the blood serum was negative.

Progress: The patient was under observation in the hospital for two weeks. During this period he was on a general diet. He complained of more or less constant, dull epigastric pain.

Whether or not this case was one of ulcer was not determined, although the history and roentgen-ray findings make the accuracy of such a diagnosis probable. In a second case with identical roentgen-ray findings there was a history of dyspeptic symptoms, like those usual for a gastric neurosis of several years' duration. In a third case the symptoms were those of ulcer, and a gastric ulcer in the antral region was found at operation.

Cases such as the one reported above demand continued, careful study and observation. The character of the treatment will depend on the medical and financial conditions of each patient. Ambulatory treatment

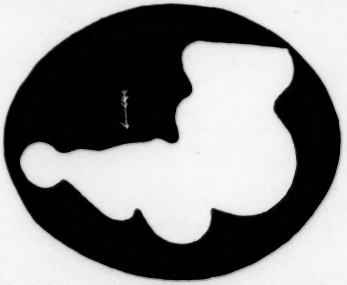

Fig. 6 (Case 5).—Tracing of stomach made with the aid of the fluoroscope. Arrow points to the region on the lesser curvature over which no peristaltic waves were seen to pass.

may be tried first, as was done in Case 3. If this fails, then rest treatment and finally a medical regimen for ulcer should be instituted.

SUMMARY AND COMMENT

The findings in the cases reported demonstrate that:

1. Cases occur in which either the presence of an ulcer is not diagnosed, or in which the presence or

absence of an ulcer cannot be definitely determined except by exploratory operation.

2. It is necessary to interpret roentgen-ray findings in relation to the data obtained by careful and thorough clinical studies.

3. In certain cases roentgen-ray findings are more confusing than helpful in diagnosis.

It is obviously necessary for the internist to become familiar with roentgen-ray findings. But he can scarcely hope to become as adept as the expert roentgenographer, for roentgenology is specialized work requiring much knowledge, large experience and great skill on the part of the physician engaged in it. The best results are obtained by the proper cooperation of clinician and roentgenographer. The proper cooperation consists:

1. On the part of the roentgenographer, in the accurate description of roentgen-ray findings present, portrayal of the most probable conditions which they represent, and the exclusion of artefacts.

2. On the part of the clinician, in the integration of roentgen-ray findings into symptomatology and diagnosis.

THE USE OF BEEF-BONE SCREWS IN FRACTURES AND BONE TRANSPLANTATION

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In recent years, bone grafting has become established in surgical practice as firmly as the more simple operation of skin grafting, and, as in the latter, it has been found that the autogenous graft is the best. Practically all failures can definitely be attributed to technical errors, such as too small a graft, infection, inadequate fixed bony approximation of the graft to fragments, and poor postoperative fixation of the part. I have found beef-bone screws to be a great aid in attaining this fixed approximation of the graft to the bone, and I believe that they would be employed more if their uses and methods of preparation were more generally known. I am well aware of the fact that a few surgeons have used them, but I present this article on their preparation and use believing that it may be of interest to others.

There can be no doubt that, from a purely theoretical point of view, screws made from the bone of the patient, such as the bone pegs advocated by Albee, would be better than beef-bone screws. The theory when put into practice, however, has so many objections, such as the difficulty of making the screws or pegs properly, and the extra amount of bone used, that I have come to the conclusion that the beef-bone screws are to be preferred. The question of whether the beef bone is suitable for a graft does not enter into this discussion, for all that is demanded of the screws is that they provide fixation of the autogenous graft to the fragments. They are usually absorbed completely within from six months to a year.

We know that the bone transplant must be held firmly in position and have broad contact with the bone to which it is to be grafted. While in theory an inlay graft is best and occasionally it is possible to obtain a perfectly fitting inlay by the use of the double bladed circular saws, in actual practice this is not easy. If the blades of the twin saw are out of line there will be a considerable discrepancy in the size of the graft and the slot. It is necessary to employ some means of securing the graft to prevent it from moving. Kangaroo tendon or catgut sutures thrown about the fragments and the graft are not satisfactory. Beef-bone screws properly placed are well-nigh ideal for the purpose.

PREPARATION OF SCREWS

Fresh beef bone is obtained usually from the tibia, the joint ends are sawed off, and the shaft is boiled for one and one-half hours to remove the tissue and the marrow. The shaft is sawed into pieces $3\frac{3}{4}$, $2\frac{3}{8}$ and $1\frac{1}{4}$ inches long for the large, medium and small size of screws, respectively. The medium sized screw is of aid in many situations, and many more of these are used than of either the large or the small screws. The sizes used by us are standard, and in mechanical terms the large screws are known as $\frac{5}{16}$ by 18, the medium size as 10 by 24, and the small as 6 by 32. The lengths

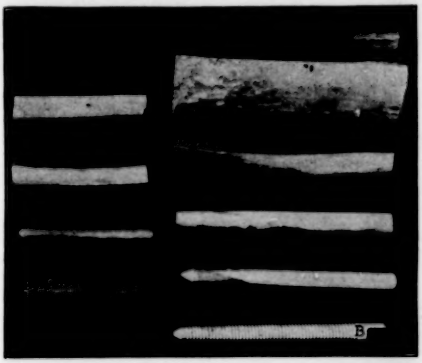

Fig. 1.—Piece of beef-bone with strips, blanks and screws: *A*, medium sized screw, 10 by 24; *B*, large sized screw, $\frac{5}{16}$ by 18.

adopted are arbitrary and may be varied to suit the needs of the case. The pieces are sawed lengthwise into strips; their width varies according to the diameter of the screw to be made. The strips are roughly sized in the vise by filing, and are then turned to the proper size, pointed, and the head rounded in the lathe. These finished blanks are placed, for one-half hour, in petrolatum brought to the melting point in a double boiler, in order to replace to some extent the natural oils removed by the boiling. This renders the bone a little less brittle and less likely to crumble when being threaded. The heat must not be extreme or the bone will be overheated and rendered almost chalky.

The blanks are placed in the lathe and threaded by using a standard machine screw die. Petrolatum is freely used on the die while the threads are being cut. The large blank is threaded with a standard $\frac{5}{16}$ inch by 18 die. The head is $\frac{5}{16}$ inch long and is flattened on two sides to $\frac{1}{4}$ inch in thickness to fit a special wrench. The large screw when finished is ordinarily $3\frac{1}{2}$ inches long, but this may be varied. The medium sized blank is finished into a screw $\frac{19}{100}$ inch in diameter and $2\frac{1}{4}$ inches in length (Fig. 1). A little more care is necessary in putting the threads on this size than on the large screw, and

we have found it necessary to step down the threads by using three dies: 12 by 24, 11 by 24, and 10 by 24. The small blank is for a screw $1\frac{4}{100}$ inch in diameter and $1\frac{1}{8}$ inches long. It is necessary to step down the threads for this screw as follows: 8 by 32, 7 by 32, to 6 by 32. The heads of the two smaller screws are $\frac{1}{4}$ inch long and $\frac{1}{4}$ inch in diameter to allow for hexagonal shaping to a $\frac{3}{16}$ inch standard. These fit a specially made socket wrench fitted to the end of a small brace. When the screws are received from the machine shop they are thoroughly scrubbed with soap and water and boiled in water for thirty minutes. They are then kept in the instrument case and boiled as required, just as any instrument is boiled. The screws are cheap, easily made and well tolerated by bone. The one objection to them is that they are brittle and will not withstand any great amount of stress, particularly if there is any torsion with the strain. For his interest and skill in the actual manufacture of the screws we are indebted to Mr. George Little, chief of the instrument shop of the Mayo Clinic.

SURGICAL USES

Even though the beef-bone screws are well made, they cannot be successfully used unless there are at hand the proper instruments for placing them. Above all, it must be remembered that they withstand very little twisting force, and if they bind when being screwed in, they will break. For the large size, $\frac{5}{16}$ by 18, a special socket wrench is used. I have used the large screws only in situations such as the head of the femur or the condyle of the femur. If not passed through any cortical bone, they are of sufficient strength to make their own threads in the soft bone, and the drill hole bored by a $\frac{9}{32}$ inch twist drill does not need to be tapped. Since the medium sized screws, 10 by 24, and the small screws, 6 by 32, have a hexagonal head of the same size, the same wrench fits the two (Fig. 2 *D* and *E*). For the medium sized screw the holes in the graft and fragment are bored by a No. 17 twist drill (Fig. 2 *A*) and the hole is tapped by a $\frac{10}{24}$ tap (Fig. 2 *B* and *C*). For the small screw the hole is bored by a No. 29 twist drill and the hole tapped by a $\frac{6}{32}$ tap. The drills can be used on the electric motor or on the hand drill. The tapping must be carefully done by hand. Handles of different styles for the wrench and taps will be found convenient for the different situations (Fig. 2 *B* and *C*). If the subcutaneous structures are scanty, the heads of the bone screws may be removed either by bone-biting forceps or a Gigli saw.

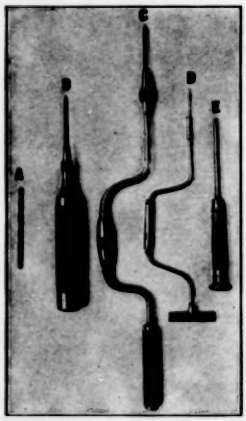

Fig. 2.—Instruments necessary for the placing of beef-bone screws: *A*, No. 17 twist drill; *B*, straight handled 10 by 24 tap; *C*, offset handle 10 by 24 tap; *D*, offset handle wrench with hexagonal headed beef-bone screw in socket; *E*, straight handle wrench.

In recent spiral or oblique fractures of the long bones, recent fractures of the neck of the femur, of the olecranon process, and in certain fractures of the patella, the screws are an excellent means of obtaining coaptation of the fragments. They are a splendid means of fastening the bone graft to the spinous processes, as is necessary in the operation advanced by Albee for tuberculosis of the spine, and are the only means known to me whereby proper bony approximation can be assured (Fig. 3). They are not so ideal in delayed union or for ununited fractures. It has been my experience that in fractures of these two groups, it is best to accept no compromise but to employ a large graft so that when the operation is completed there is from 20 to 25 per cent. more bone in the fractured region than is normal (Fig. 4). When we are dealing with a case of long standing nonunion of the humerus or of the bones of the forearm, the bones are often osteoporotic and smaller than normal. In such cases every surgeon of experience has seen his inlay or intramedullary grafts thin out and finally break at the line of fracture. The absorption of the graft takes place so rapidly, or perhaps it would be better to say that the deposition of new bone is carried on so slowly, that the graft is partially absorbed and cracks on slight stress, and a technically well performed operation in a properly selected case is discredited. In such a predicament the surgeon should not be dismayed and give up all hope of obtaining union, but he should at once see that the part is thoroughly immobilized for at least two months more. In the majority of cases, and particularly if the transplant has been of good size, union will occur. I believe that

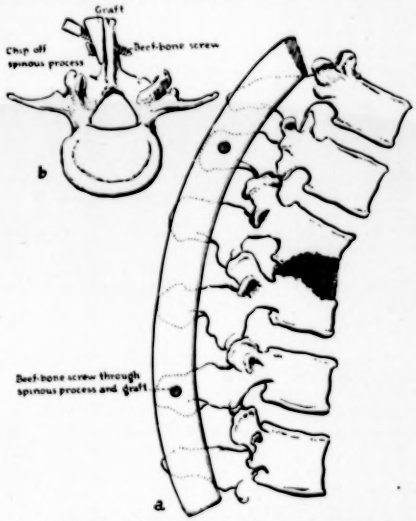

Fig. 3.—Curved tibial bone graft (*a*) held securely in place by the aid of two beef-bone screws placed through the graft and spinous processes; *b*, transverse section showing the relative positions of the graft, spinous process and beef-bone screw.

the excess of bone elements brought to the devitalized area is an important causative factor in bringing about union, and this is my reason for so strongly emphasizing the large graft. If the roentgen ray discloses very marked osteoporosis of the fragments, exercises should be instituted prior to operation, regardless of the fracture, because it is only by this means that the osteoporosis will be overcome. Many failures to obtain bony union are due to operating on bones that are far below par in bone salts and bone forming elements. Obviously, the simplest way to prevent a fracture of the transplant is to place a very large graft, and by this I mean large in diameter as well as in length (Fig. 4 *b*). The discredit of the bone graft found in some of the recent writings, particularly from abroad, is more than likely due to the authors' experiences with fracturing of the grafts, the cause of which is probably the use of too small transplants.

The technic of the inlay graft will not permit the placing of a very broad piece in the fragments (Fig. 4 *c*). On account of failure and accidents with the ordinary intramedullary and inlay grafts, and the belief that it is most important to place more bone in the fractured area than is normally there, it has been my custom for some time to proceed as follows: The bone ends are carefully freshened so that as broad an area of their surface as possible will be in firm contact. The medullary cavity in each fragment should be opened. From one fifth to one fourth of the entire thickness of the bone from each fragment on one side is removed for a goodly distance above and below the fracture. This should not remove the entire cortical wall. The graft, which is a piece of healthy bone from the tibia or the entire thickness of the fibula, flattened on one side, is greater in thickness than the amount of bone removed from the fragments, and is placed against their freshened surfaces, the ends of which are in firm apposition and the medullary cavities in line. It is held in place by two or more beef-bone screws through the graft and through the remains of the proximal cortex and the opposite cortex of each fragment (Figs. 5 and 6).

SUMMARY

1. Beef-bone screws are a great aid in securing firm fixation of the bone graft to the fragments in fractures, and of the graft to the spinous processes in the operation for fixation of the spine.

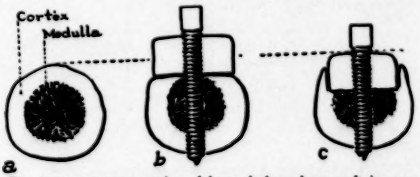

Fig. 4.—*a*, transverse section of bone; *b*, large bone graft in apposition to fragment from which part of cortex has been lifted to permit broad contact; graft held in place by beef-bone screws through the opposite cortex; *c*, inlay graft; beef-bone screw placed through graft and the opposite cortex.

2. They are well tolerated by the bone and are gradually but completely absorbed.

3. Bone screws have not the strength of metal and must not be expected to stand great stress. Careful provision must be made for postoperative fixation of the extremity.

4. Drills, taps and wrenches of the proper size are essential for the placing of beef-bone screws.

5. The bone graft as commonly used in the intramedullary and inlay methods is too small. Fracture of the graft rarely, if ever, occurs if the graft is large enough so that when the operation is completed there is from 20 to 25 per cent. more bone in the fracture area than there is normally.

Fig. 5.

Fig. 6.

Fig. 5 (Case 279058).—Roentgenogram of ununited fracture of lower third of tibia and fibula of eight years' standing in a woman, aged 20.

Fig. 6 (Case 279058).—Roentgenogram of tibia and fibula shown in Figure 5. Fixation, by means of four beef-bone screws, of piece of entire thickness of fibula from upper fragment, placed against fragments of tibia.

Liquid Disinfectants.—Liquid disinfectants may be substances either in solution or suspension. There are certain principles to be observed in the use of liquid disinfectants. A hot liquid disinfectant acts much more powerfully and quickly than a cold one. A disinfectant that is efficient at a certain percentage must be in that percentage in the mixture; for example, a disinfectant that will effectively disinfect at 2 per cent. strength must be present in a 2 per cent. strength in the resulting mixture. An emulsion is, as a rule, more germicidal than a solution because the germs come in contact with the crude drug, but a solution has more penetrative power than an emulsion. Each type of disinfectant has its own time necessary for efficient disinfection, e. g., a disinfectant that requires one-half hour to disinfect will not disinfect in fifteen minutes. The following disinfecting solutions are most commonly used: mercuric chlorid solution, 1:100 dilution or 1:1,000 solution for one-half hour (can not be used in albuminous medium or on metals, as it corrodes them); phenol, 5 per cent. solution for one-half hour; cresol, 2 per cent. emulsion for one-half hour; liquor formaldehydi, 10 per cent. solution for one-half hour; chlorinated lime, 5 per cent. solution for one hour (for disinfection of water, 1:150,000 solution for one-half hour is effective).—*U. S. Naval Medical Bulletin*, January, 1920.

BOTULISM

PRELIMINARY REPORT OF A STUDY OF THE ANTITOXIN OF BACILLUS BOTULINUS *

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The experiments recorded in this report were performed during the year 1917-1918, but on account of war conditions it was not possible to carry them further or to record them at that time. We had planned to delay publication until further experimental data could be obtained concerning a number of points that are obviously unsettled; but on account of the widespread interest that has recently been aroused in the subject of botulism, and the expression of various theories and speculations concerning the value of botulinus antitoxin as a therapeutic agent, we are offering this as a preliminary report with the hope that it may draw attention to certain facts that have been established.

THE PRODUCTION OF ANTITOXIN

Kempner,[1] in 1897, for the first time demonstrated that susceptible animals may be immunized to the toxin of *B. botulinus* (he used the Van Ermengem strain), and that a potent antitoxin may be produced. He was unsuccessful in his attempt to immunize the smaller laboratory animals, but succeeded in immunizing goats and in obtaining a potent antitoxin, 1 c.c. of which would protect against 100,000 minimal lethal doses for guinea-pigs.

Forssman and Lundstrom[2] succeeded in immunizing rabbits and guinea-pigs by using toxin that had been attenuated by heating for the first injection. They also immunized goats, and found that they obtained more rapid antitoxin formation if they injected the toxin subcutaneously than when they employed intravenous injections, and if they gave comparatively small amounts of toxin at comparatively longer intervals than were used by Kempner.

Wassermann[3] and Leuchs[4] were both successful in immunizing horses, and Leuchs recorded a comparative study of the toxin-antitoxin relationships of the Van Ermengem strain and the Darmstadt strain of *B. botulinus* in which he showed that the two strains were distinct in that the toxin of one was not affected by the specific antitoxin of the other, and vice versa. Leuchs was therefore the first to recognize that there are at least two types of *B. botulinus*, and that if immune serum is to be used therapeutically it should be a polyvalent serum.

In this country several investigators have prepared botulinus antitoxin for experimental purposes, but as yet none is available for commercial distribution. Graham, Brueckner and Pontius[5] prepared antitoxin by injecting sheep, goats and cattle with toxin of the Niven strain (Strain VI of our series) and with toxin from strains which they isolated in outbreaks of forage poisoning. Buckley,[6] at the U. S. Department of Agriculture, has prepared an antitoxin for the strain which was isolated by Thom, Edmonson and Giltner from asparagus which caused the poisoning at Boise, Idaho. Hart,[7] at the University of California Department of Agriculture, has immunized horses to strains that were obtained from our laboratory. Meyer, Hurwitz and Taussig[8] successfully immunized dogs against the toxin of our Strain III, and Mrs. Burke[9] reports the immunization of rabbits.

We obtained the antitoxin used in our experiments by inoculating Goats 1, 2 and 3 with Strains III, IV and VI, respectively, of our strains of *B. botulinus* over a period of several months. We were unable to follow out any previously determined plan for inoculating, as the goats reacted so differently to inoculation that we were forced to regulate the dosage and interval by the condition of each animal at the time. We did not obtain as highly potent antitoxins as Kempner or Forssman and Lundstrom report, although they were of sufficient potency for experimental purposes.

TABLE 1.—IMPORTANT DATA CONCERNING THE HISTORY OF THE STRAINS OF B. BOTULINUS STUDIED IN THIS INVESTIGATION

Strain	Date	Location	Persons Ill	Persons Died	Poisoned Fowl	Poisoned Animals	Cause of Poisoning	B. Botulinus Recovered From
III	1915	San Jose, Calif.	1	1	8	.....	Home-canned string beans	Contents of chicken crop
IV	1914	Hillsboro, Ore.	1	1	50	.....	Home-canned corn	Contents of chicken gizzard
VI	1915	Albany, N. Y.	?	?	..	.....	Cheese	Cheese (the Niven strain)
VII	1917	Seattle	3	3	20*	.....	Home-canned asparagus	Contents of chicken crop
VIII	1918	Berkeley, Calif.	..	..	12	.....	Home-canned string beans	Unopened jar of same lot of beans
IX	1918	Madera, Calif.	8	6	25	.....	Home-canned apricots	Contents of chicken crop
X	1918	Hollister, Calif.	..	..	..	2 hogs	Home-canned peas	Feces of hogs

* Approximately

TABLE 2.—PRODUCTION OF SPECIFIC ANTITOXIN FOR TOXIN OF STRAIN III

Guinea-Pig	Weight, Gm.	Toxin III, C.c.	Antitoxin III, C.c.	Results
1	300	0.00033	(Toxin control)	Died in approx. 30 hours
2	300	0.00033	(Toxin control)	Died in approx. 40 hours
3	325	0.00033	1	Survived
4	275	0.00033	0.1	Survived
5	325	0.00033	0.01	Survived
6	250	0.00033	0.001	Survived
7	240	0.00033	0.0005	Survived
8	250	0.00033	0.00033	Survived
9	300	0.00033	0.0002	Died in approx. 8 days
10	300	0.00033	0.0001	Died in approx. 36 hours

The potency of our three antitoxins, and the fact that they will neutralize the effect of the toxin when multiple proportions of the test dose of toxin and of antitoxin equivalent are mixed in vitro and injected into animals, are shown in Tables 2 to 7, inclusive. In all our experiments, unless it is otherwise stated, the toxins and antitoxins were mixed in vitro before

* Aided by a grant from the California State Council of Defense.
* From the Laboratory of Experimental Medicine, Leland Stanford Junior University School of Medicine.

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4. Leuchs, J.: Bacillus Botulinus (Immunität), in Kolle, W., and von Wassermann, A.: Handbuch der pathogenen Mikroorganismen, Jena, Ed. 2, **4**: 939, 1912.
5. Graham, Brueckner and Pontius: Studies in Forage Poisoning, V and VI, Bull. 207, Kentucky Agr. Exper. Sta., 1917. Graham, Robert, and Brueckner, A. L.: The Relation of B. Botulinus to Forage Poisoning or Cerebrospinal Meningitis in Horses, J. Bacteriol. **4**: 1 (Jan.) 1919.
6. Buckley, J., cited by Armstrong, Charles; Story, R. V., and Scott, Ernest: Botulism from Eating Canned Ripe Olives, Pub. Health Rep. **34**: 2877 (Dec. 19) 1919.
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9. Burke, G. S.: Notes on Bacillus Botulinus, J. Bacteriol. **4**: 555 (Sept.) 1919.

being injected, and all inoculations were given subcutaneously. It was assumed that complete protection had been given if the animal showed no illness within a month after the injection.

From Tables 2, 4 and 6 it will be noted that the potency of our antitoxins may be defined as approximately 3,000, 5,000 and 600 for Strains III, IV and VI, respectively, the number indicating the respective antitoxin equivalents in 1 c.c. of serum, as tested

TABLE 2.—PROTECTION AGAINST TOXIN III AFFORDED BY ANTITOXIN III WHEN TEST DOSE OF TOXIN AND EQUIVALENT OF ANTITOXIN ARE INCREASED IN MULTIPLE PROPORTIONS

Guinea-Pig	Weight, Gm.	Toxin III, C.c.	Antitoxin III, C.c.	Proportions	Results
11	300	0.001	(Toxin control)	..	Died in approx. 40 hours
12	200	0.001	0.0005	1	Survived
13	250	0.002	0.001	2	Survived
14	250	0.005	0.0025	5	Survived
15	250	0.010	0.005	10	Survived

TABLE 4.—PRODUCTION OF SPECIFIC ANTITOXIN FOR TOXIN IV

Guinea-Pig	Weight, Gm.	Toxin IV, C.c.	Antitoxin IV, C.c.	Results
16	275	0.00033	(Toxin control)	Died in approx. 48 hours
17	300	0.00033	0.01	Survived
18	250	0.00033	0.001	Survived
19	250	0.00033	0.0002	Survived
20	175	0.00033	0.0001	Died in approx. 70 hours

TABLE 5.—PROTECTION AGAINST TOXIN IV AFFORDED BY ANTITOXIN IV WHEN TEST DOSE OF TOXIN AND EQUIVALENT OF ANTITOXIN ARE INCREASED IN MULTIPLE PROPORTIONS

Guinea-Pig	Weight, Gm.	Toxin IV, C.c.	Antitoxin IV, C.c.	Proportions	Results
21	325	0.00025	(Toxin control)	..	Died in approx. 40 hours
22	275	0.00025	0.0005	1	Survived
23	275	0.0005	0.001	2	Survived
24	250	0.00125	0.0025	5	Survived
25	250	0.0025	0.005	10	Survived

TABLE 6.—PRODUCTION OF SPECIFIC ANTITOXIN FOR TOXIN VI

Guinea-Pig	Weight, Gm.	Toxin VI, C.c.	Antitoxin VI, C.c.	Results
26	250	0.001	(Toxin control)	Died in approx. 40 hours
27	250	0.001	0.01	Survived
28	250	0.001	0.002	Survived
29	225	0.001	0.00125	Survived
30	200	0.001	0.0002	Died in approx. 48 hours

TABLE 7.—PROTECTION AGAINST TOXIN VI AFFORDED BY ANTITOXIN VI WHEN TEST DOSE OF TOXIN AND EQUIVALENT OF ANTITOXIN ARE INCREASED IN MULTIPLE PROPORTIONS

Guinea-Pig	Weight, Gm.	Toxin VI, C.c.	Antitoxin VI, C.c.	Proportions	Results
31	225	0.001	(Toxin control)	..	Died in approx. 40 hours
32	250	0.001	0.00125	1	Survived
33	250	0.002	0.0025	2	Survived
34	250	0.005	0.00625	5	Survived
35	250	0.01	0.0125	10	Survived

against one test dose of its homologous toxin. Our figures are only approximate, however, as it was impossible to obtain a sufficient number of guinea-pigs of the same weight to standardize our injections accurately. On this account we adopted the rule of using our heaviest animal for the toxin control, or, when the variation in weight was too great, of using two or more animals of different weights as toxin controls. In subsequent experiments we hope to establish more accurately standardized results.

EXPERIMENTS TO TEST THE EFFECT OF ANTITOXINS III, IV AND VI ON THE TOXINS OF OTHER AVAILABLE STRAINS OF B. BOTULINUS.

In our experiments we have investigated the toxins of seven strains of *B. botulinus*, six of them strains that were recovered in our laboratory from various home-canned vegetables and fruits that had caused outbreaks of food poisoning on the Pacific Coast, and one that was recovered by Niven from cheese in New York State. We did not test Strains I, II and V of our series because of the very low virulence of their toxins. The histories of the strains investigated are abstracted in Table 1.

(*a*) Experiments to test the action of Antitoxin III against the toxins of Strains IV, VI, VII, VIII, IX and X, respectively (Table 8): The experiments show that Antitoxin III has a protective action against

TABLE 8.—PROTECTION BY ANTITOXIN III AGAINST ACTION OF TOXINS IV, VII AND IX, BUT ABSENCE OF PROTECTION AGAINST TOXINS VI, VIII AND X

Guinea-Pig	Weight, Gm.	Toxin—Strain	Toxin—C.c.	Antitoxin III, C.c.	Results
36	225	IV	0.00033	(Toxin control)	Died in approx. 48 hours
37	200	IV	0.00033	0.0002	Survived
38	200	IV	0.00033	0.0001	Ill but recovered
39	325	VI	0.0135	(Toxin control)	Died in approx. 40 hours
40	225	VI	0.0135	0.5	Died in approx. 60 hours
41	225	VI	0.0135	1	Died in approx. 40 hours
42	275	VII	0.00 6	(Toxin control)	Died in approx. 40 hours
43	250	VII	0.0036	1	Survived
44	250	VIII	0.00135	(Toxin control)	Died in approx. 40 hours
45	250	VIII	0.00135	1	Died in approx. 60 hours
46	225	IX	0.6	(Toxin control)	Died in approx. 18 hours
47	200	IX	0.6	1	Survived
48	325	X	0.75	(Toxin control)	Died in approx. 18 hours
49	325	X	0.75	1	Died in approx. 18 hours

TABLE 9.—PROTECTION BY ANTITOXIN IV AGAINST ACTION OF TOXINS III, VII AND IX, BUT ABSENCE OF PROTECTION AGAINST TOXINS VI, VIII AND X

Guinea-Pig	Weight, Gm.	Toxin—Strain	Toxin—C.c.	Antitoxin IV, C.c.	Results
50	300	III	0.00033	(Toxin control)	Died in approx. 40 hours
51	225	III	0.00033	0.0002	Survived
52	225	III	0.00033	0.0001	Died in approx. 90 hours
53	250	VI	0.0135	(Toxin control)	Died in approx. 36 hours
54	250	VI	0.0135	0.5	Died in approx. 48 hours
55	250	VI	0.0135	1	Died in approx. 48 hours
56	275	VII	0.0076	(Toxin control)	Died in approx. 40 hours
57	250	VII	0.0076	1	Survived
58	250	VIII	0.00132	(Toxin control)	Died in approx. 40 hours
59	250	VIII	0.00132	1	Died in approx. 60 hours
60	225	IX	0.6	(Toxin control)	Died in approx. 18 hours
61	200	IX	0.6	1	Survived
62	325	X	0.75	(Toxin control)	Died in approx. 18 hours
63	325	X	0.75	1	Died in approx. 18 hours

the toxins of Strains IV, VII and IX as well as against its own Toxin III. Although the tables have been abbreviated, sufficient data are given to show that 1 c.c. of Serum III protects against approximately 5,000 test doses of Toxin IV, an even higher degree of protection than was obtained in our tests of Antitoxin III against Toxin III (Table 2). Quantitative tests against Strains VII and IX are not given.

It is also shown that Antitoxin III has no appreciable effect in protecting against the action of Toxins VI, VIII and X, although an antitoxin equivalent of 3,000 test doses was given in each case. This has been confirmed by many trials.

(*b*) Experiments to test the action of Antitoxin IV against the toxins of Strains III, VI, VII, VIII, IX and X, respectively (Table 9): The experiments show that Antitoxin IV protects against the same toxins as Antitoxin III, namely, against III, VII and IX as well as against its own toxin. Like Antitoxin

III it does not show any appreciable protective action against Toxins VI, VIII and X.

(*c*) Experiments to test the action of Antitoxin VI against the toxins of Strains III, IV, VII, VIII, IX and X, respectively (Table 10): The experiments show that Antitoxin VI has no appreciable protective action against the toxins that are counteracted by Antitoxins III and IV, namely, III, IV, VII and IX, but that it does protect against Toxins VIII and X, which are not affected by Antitoxins III and IV.

TABLE 10.—PROTECTION BY ANTITOXIN VI AGAINST ACTION OF TOXINS VIII AND X, BUT ABSENCE OF PROTECTION AGAINST TOXINS III, IV, VII AND IX

Guinea-Pig	Weight, Gm.	Toxin—Strain	Toxin—C.c.	Antitoxin VI, C.c.	Results
64	325	III	0.00033	(Toxin control)	Died in approx. 30 hours
65	300	III	0.00033	1	Died in approx. 30 hours
66	275	IV	0.00028	(Toxin control)	Died in approx. 60 hours
67	250	IV	0.00028	1	Died in approx. 48 hours
68	275	VII	0.0076	(Toxin control)	Died in approx. 40 hours
69	275	VII	0.0076	1	Died in approx. 42 hours
70	250	VIII	0.00132	(Toxin control)	Died in approx. 40 hours
71	250	VIII	0.00132	1	Survived
72	225	IX	0.6	(Toxin control)	Died in approx. 18 hours
73	175	IX	0.6	1	Died in approx. 18 hours
74	325	X	0.75	(Toxin control)	Died in approx. 18 hours
75	325	X	0.75	1	Survived

From the foregoing experiments it is clear that there are in this country at least two types of *B. botulinus* which can be easily differentiated by toxin-antitoxin tests. The seven strains which we investigated fall into two homologous series of four and three, respectively, and have been described as Types A and B. So far as our investigations have gone, there appears to be very little if any cross protection afforded by the antitoxin of either type for the toxin of the other, a fact that will be referred to later in discussing the therapeutic value of botulinus antitoxin.

EXPERIMENTS TO TEST THE EFFECT OF THE ADMINISTRATION OF SPECIFIC ANTITOXIN AT VARYING INTERVALS AFTER THE INJECTION OF TOXIN

In the following experiments the toxin and antitoxin of Strain III were employed. The amount of antitoxin is indicated in every case in terms of the anti-

TABLE 11.—RELATIVE AMOUNTS OF ANTITOXIN NECESSARY TO PROTECT AGAINST ONE TEST DOSE OF TOXIN, WHEN ANTITOXIN AND TOXIN ARE MIXED IN VITRO, AND ARE INJECTED SEPARATELY

Guinea-Pig	Weight, Gm.	Toxin III, C.c.	Antitoxin III, C.c.	Method of Administration	Results
76	300	0.001	(Toxin control)	.....	Died in approx. 36 hours
77	250	0.001	0.0005	Mixed in vitro	Survived
78	250	0.001	0.0005	Separately	Died in approx. 60 hours
79	250	0.001	0.001	Separately	Died in approx. 60 hours
80	275	0.001	0.002	Separately	Ill but recovered

toxin equivalent of one test dose of toxin when mixed in vitro. The antitoxic serum of Strain III was such that 1 c.c. gave complete protection against 3,000 test doses.

(*a*) Experiments to show the relative proportions of antitoxin necessary to protect against one test dose of toxin when the toxin and antitoxin are mixed in vitro before injection, and when the toxin and antitoxin are given simultaneously but injected separately (Table 11): It was found that it requires at least four times as much antitoxin to neutralize one test dose of toxin in vivo as is necessary when the two are mixed in vitro. In all our experiments, therefore, in which we have attempted to determine the interval after the injection of toxin during which the administration of antitoxin may be of value, we have employed at least five times the antitoxin equivalent of one test dose of toxin when the two are mixed in vitro.

(*b*) Experiments to test the value of injecting antitoxin at varying intervals after the administration of toxin: 1. In the first series of experiments, slightly more than one test dose of toxin was injected subcutaneously (the animals died in from thirty-three to forty hours after the injection, whereas if one test dose had been given they should have survived for forty-eight hours); and at intervals of six, twelve, eighteen and twenty-four hours thereafter, varying amounts of antitoxin, from 5 to 250 antitoxin equivalents, were injected, also subcutaneously. Guinea-pigs were used for the experiments, and a toxin control animal was injected for each group (Table 12).

TABLE 12.—EFFECT OF INJECTING VARYING AMOUNTS OF ANTITOXIN AT VARYING INTERVALS AFTER ADMINISTRATION OF SLIGHTLY MORE THAN ONE TEST DOSE OF TOXIN

Guinea-Pig	Weight, Gm.	Toxin III, C.c.	Antitoxin III, C.c.	Multiple of Antitoxin Equivalents	Interval After Toxin	Results
81	225	0.0005	(Toxin control)	...	.....	Died in approx. 33 hours
82	225	0.0005	0.0025	5	Simultaneous	Survived
83	200	0.0005	0.025	50	Simultaneous	Survived
84	200	0.0005	0.125	250	Simultaneous	Survived
85	225	0.0005	(Toxin control)	...	.....	Died in approx. 33 hours
86	225	0.0005	0.0025	5	6 hours	Survived
87	200	0.0005	0.025	50	6 hours	Survived
88	200	0.0005	0.125	250	6 hours	Survived
89	225	0.0005	(Toxin control)	...	.....	Died in approx. 34 hours
90	225	0.0005	0.0025	5	12 hours	Survived*
91	200	0.0005	0.025	50	12 hours	Survived*
92	200	0.0005	0.125	250	12 hours	Survived*
93	225	0.0005	(Toxin control)	...	.....	Died in approx. 40 hours
94	225	0.0005	0.0025	5	18 hours	Survived*
95	200	0.0005	0.025	50	18 hours	Survived*
96	200	0.0005	.....	...	.....	Died in approx. 18 hours
97	225	0.0005	(Toxin control)	...	.....	Died in approx. 35 hours
98	225	0.0005	.....	...	.....	Died within 24 hours
99	200	0.0005	0.025	50	24 hours	Died in approx. 36 hours
100	200	0.0005	0.125	250	24 hours	Died in approx. 36 hours

* The animals were ill but recovered.

The experiments indicate that when slightly more than one test dose of toxin is injected, the lives of the animals may be saved if the antitoxin is given within eighteen hours after the toxin, although it does not prevent the onset of symptoms even when given twelve hours after. They also indicate that an excess of antitoxin affords no greater protection than smaller amounts, provided the smaller amount is sufficient to neutralize the amount of toxin administered.

2. In a second experiment, one test dose of toxin was injected subcutaneously (the control animal died in forty-eight hours), and an excess of antitoxin was injected at intervals of six, twelve, eighteen and twenty-four hours thereafter (Table 13). The animals all survived, showing that when a smaller amount of toxin is injected, the length of time during which the antitoxin may exert its influence is lengthened, and that, under such circumstances, if given within

twenty-four hours after the toxin, it may afford full protection.

3. A third experiment was performed in which rabbits were fed sufficient toxin to kill the control in approximately forty-five hours, and at varying intervals thereafter an excess of antitoxin was injected subcutaneously (Table 14).

The animals all survived, showing that when the toxin is administered by feeding as well as when it is injected subcutaneously, the administration of antitoxin may be of value if given within twenty-four hours after approximately one test dose (by mouth) of toxin.

THE THERAPEUTIC VALUE OF BOTULINUS ANTITOXIN

So far as we have been able to learn, there is no great amount of published data concerning therapeutic or prophylactic use of botulinus antitoxin. In this country, until very recently, the only available supplies of specific antitoxin have been at the Department of Animal Husbandry, University of Illinois, and at our own laboratory; but as stated earlier in this report, several investigators are now preparing antitoxin for experimental purposes. An attempt has been made in several outbreaks to combat the intoxication by administering antibotulinus serum, but without any very satisfactory results. Feb. 2, 1918, we gave 85 c.c. of immune goat serum [10] (Mixture of A and B) by subcutaneous injection to each of two patients at Madera, Calif.[11] Both patients recovered; but as the antitoxin was given very late, in fact, after all the more seriously poisoned patients had succumbed, there is no definite evidence that the course of the illness was favorably influenced by the antitoxin, although it was later shown that the toxin of the strain recovered from the food was Type A.

TABLE 13.—EFFECT OF INJECTING LARGE AMOUNT OF ANTITOXIN (3,000 ANTITOXIN EQUIVALENTS) AT VARYING TIMES AFTER ONE TEST DOSE OF TOXIN

Guinea-Pig	Weight, Gm.	Toxin III, C.c.	Antitoxin III, C.c.	Interval After Toxin	Results
101	250	0.00014	(Toxin control)	.....	Died in approx. 48 hours
102	250	0.00014	1	Simultaneous	Survived
103	250	0.00014	1	6 hours	Survived
104	250	0.00014	1	12 hours	Survived
105	250	0.00014	1	18 hours	Survived
106	250	0.00014	1	24 hours	Survived

TABLE 14.—EFFECT OF INJECTING LARGE DOSES OF ANTITOXIN AT VARIOUS INTERVALS AFTER ADMINISTRATION OF ONE LETHAL TEST DOSE (BY MOUTH) OF TOXIN

Rabbit	Weight, Gm.	Toxin III by Mouth, C.c.	Antitoxin III, Subcutaneously, C.c.	Multiple of Antitoxin Equivalents	Time After Toxin	Results
1	1,250	1	(Toxin control)	.....	.....	Died in approx. 45 hours
2	1,250	1	1.5	4,500	Simultaneous	Survived
3	1,250	1	1.5	4,500	6 hours	Survived
4	1,200	1	1.5	4,500	12 hours	Survived
5	1,200	1	1.5	4,500	18 hours	Survived
6	1,200	1	1.5	4,500	24 hours	Survived

McCaskey [12] has reported the administration of small doses of antitoxin to three patients who were poisoned by home-canned string beans at Decatur, Ind. The antitoxin was given in small doses, from 5 to 10 c.c. One of the patients died and two recovered, and McCaskey believes that the serum was of some aid. Graham's antitoxin, which was Type B, was used in this outbreak, and the organism that was later recovered has proved to be of the same type.

At Detroit, in October, 1919, Jennings, Haass and Jennings [13] administered antitoxin which was obtained from Graham at the University of Illinois. They injected 42 c.c. of serum intravenously in one case without any apparent effect, and 20 c.c. in two injections to another patient, who recovered. They state that in the latter case the illness was so mild that they could "not state that the serum had any influence on her recovery."

TABLE 15.—TYPES OF STRAIN OF B. BOTULINUS RECOVERED FROM FOODS PREPARED FOR HUMAN CONSUMPTION

No.	Strain	Obtained From	Place of Poisoning	Food Material	Type
1	III	.....	San Jose, Calif.	Home-canned string beans	A*
2	IV	.....	Hillsboro, Ore.	Home-canned corn	A*
3	VI	Burkey (Niven strain)	Albany, N. Y.	Cheese	B*
4	VII	.....	Seattle	Home-canned asparagus	A*
5	VIII	.....	Berkeley, Calif.	Home-canned string beans	B
6	IX	.....	Madera, Calif.	Home-canned apricots	A*
7	X	.....	Hillsboro, Ore.	Home-canned peas	B
8	XI	Burke	Berkeley, Calif.	Home-canned string beans	A
9	XII	Burke	Sacramento, Calif.	Home-canned string beans	B
10	Boise	U. S. Dept. Agriculture	Boise, Idaho	Home-canned asparagus	A*
11	B. H.	Graham, Univ. Ill.	Decatur, Ind.	Home-canned string beans	B*
12	B. B. 12-8	State Dept. Health, Columbus, Ohio	Canton, Ohio	Bottled olives	A*
13	XXI	.....	Detroit	Bottled olives	A*
14	XXII	.....	Santa Maria, Calif.	Home-canned string beans	A

* Human beings were fatally poisoned.

There are newspaper reports that the Graham antitoxin has been used again in a recent outbreak of botulism in New York; but so far as we could learn, these have been all the instances recorded in the medical literature in this country.

It has been stated that there are two types of *B. botulinus* in this country, Types A and B, and that the antitoxin of one type has no apparent effect on the toxin of the other. We have had an opportunity of testing a sample of the Graham antitoxin and found it to correspond to our Type B, and Mrs. Burke [9] has shown that eight of Graham's strains of *B. botulinus* belong to Type B. It is probable, therefore, that, except in our own cases, only Type B serum has been administered in all of the cases in this country, a point that must be remembered before one arrives at any definite conclusion concerning the value of botulinus antitoxin as a therapeutic agent.

In Table 15 we have tabulated all the strains of *B. botulinus* which we have been able to obtain from outbreaks in which food prepared for human consumption was the carrier of the toxin. A survey will show that of all the outbreaks in which the serum has been used, with the exception of that at Decatur, Ind., the toxin was produced by a strain of Type A, and consequently when Type B serum was used it could not

10. One c.c. of antitoxin was equivalent to approximately 3,000 minimal lethal doses for a guinea-pig.

11. Dickson, E. C.: Botulism, a Further Report of Cases Occurring in the Pacific Coast States, Arch. Int. Med. **22**: 483 (Oct.) 1918.

12. McCaskey, G. W.: Bacillus Botulinus Poisoning; with a Report of Seven Cases, Four of Which Proved Fatal, Am. J. M. Sc. **158**: 57 (July) 1919.

13. Jennings, C. G.; Haass, E. W., and Jennings, A. F.: An Outbreak of Botulism: Report of Cases, J. A. M. A. **74**: 77 (Jan. 10) 1920.

be expected to give any satisfactory results. As it is impossible, except by laboratory experiments which consume valuable time, to know what type of toxin is responsible for the poisoning in a given outbreak, it will obviously be necessary to have a polyvalent antitoxin if satisfactory results are to be obtained.

It is our opinion that large doses of antitoxin should be given since the amount of toxin ingested is unknown, and that it should be given intravenously. In case we have an opportunity of observing any more cases we propose to follow the following plan: The usual precautions for the administration of horse serum will be observed, and the patient will be tested by intracutaneous injection for evidence of hypersensitiveness. When no hypersensitiveness is shown, the serum will be given at once and will be injected into the veins very slowly, not more than 1 c.c. a minute, until the full amount is given. When hypersensitiveness is shown, preliminary subcutaneous, intramuscular and intravenous injections of 1 c.c. at one hour intervals will be given, and one hour after the last injection the full amount will be injected intravenously at the rate of not more than 1 c.c. a minute.

CONCLUSIONS.

1. A true antitoxin may be prepared for the toxin of *Bacillus botulinus*.

2. There are at least two types of *B. botulinus*, which are distinct so far as their toxin-antitoxin relationships are concerned.

3. Experiments show that in the laboratory the antitoxin may protect against the action of the toxin for at least twenty-four hours after the administration of one test dose of toxin, but that the effectiveness is, to a certain extent at least, dependent on the amount of toxin injected.

4. For therapeutic administration a polyvalent antitoxin should be employed, and it should be given in large amounts and intravenously.

DIVERTICULITIS

REPORT OF A CASE WITH ACUTE PERFORATION

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Diverticula of a viscus may be either congenital or acquired, and they occur rather more frequently in the intestinal tract than in any other of the hollow viscera. A diverticulum is in reality a hernia outward through the wall of the viscus, carrying before it the mucous, atrophied muscularis and serous layers; or, as in some instances, only the mucous coat extrudes through the muscularis, carrying with it the serosa. The larger number, undoubtedly, are acquired, and it has been suggested that they occur more frequently where the artery penetrates the wall. They are complete or incomplete, depending on the extent of the evagination. When acquired, they occur almost invariably past middle life. Diverticula of various portions of the digestive tract are occasionally discovered in the course of an intensive roentgenologic study of the digestive tract. Multiple diverticula not giving rise to a definite set of symptoms constitute a condition termed diverticulosis, in contrast to diverticulitis, which should apply only to diverticula that do give rise to symptoms.

Diverticula of the digestive tract are found to involve the colon more frequently than any other portion. The sigmoid is the most common seat of location, and the transverse colon, cecum and rectum, in the order named, are the next most common locations. Diverticula of other portions are the exception. Diverticula in diverticulosis fill with and empty of bowel content without symptoms. The frequency with which roentgenologic studies are made of the gastro-intestinal tract for gastric disturbances demonstrates that diverticulosis is not uncommon.

A roentgenologic study is essential in making a differentiation between nonsurgical diverticulosis and surgical diverticulitis cases. True or complete diverticula, having a rather constricted opening, ultimately give rise to a set of symptoms either acute, subacute or chronic. False or incomplete diverticula rarely cause symptoms. Diverticula with retained fecal matter are potential sources of danger, the same as an appendix containing a fecal concretion. Sooner or later an acute inflammatory process takes place with rupture, if surgical interference is not resorted to early. In acute diverticulitis, operative interference is essentially the same as for acute appendicitis—that is, the diverticulum should be isolated from within the folds of the inflamed and indurated peritoneal tissues and clamped off close to the intestine, tied, and phenolated.

Some acute and almost all subacute and chronic manifestations, from the literature on the subject, seem clinically to be confused more with malignant processes than with any other single condition. In fact, one author gives statistics wherein the larger portion of the cases reported were considered, prior to operation, in one sense or another as probably malignant, the true nature of the condition not being determined until after resection of the mass involved. Since a diverticulum seldom occurs alone, except in the esophageal type, one should always, when operating on other portions of the digestive tract, make search for other diverticula which might possibly contain fecal concretions without inflammatory manifestations.

Small diverticula containing fecal concretions may readily be considered, when found adjacent, as enlarged glands incident to an acute or malignant process. These should be incised to determine their true nature and not left as a potential source of future trouble. Uncertain peritoneal fat accumulations also should be investigated by incision. Since diverticulitis may be confused with malignant processes, one must not consider, even in acute cases, any apparent associated glandular enlargements as such without incising them to determine their true nature. Further, if one was uncertain relative to a mass with *supposed glandular* enlargements, one could make the differential diagnosis by opening it. The presence of a fecal calculus would be practical evidence that the associated process was due to an advanced diverticulitis instead of to a malignancy.

REPORT OF CASE

History.—R. A. W., man, aged 58, who was 5 feet 10 inches in height and weighed 180 pounds, erect and well proportioned, with good habits and negative early history, had worked hard in the packing department of a scale works up to the day before the operation. The patient's recent history had been negative except for the presence of an "uncomfortable feeling" in the left lower abdomen for some months previous,

with an occasional sharp pain lasting a few minutes. There was no diarrhea. The patient was slightly constipated at times, which condition had no relation to his abdominal discomfort. No blood had been noted in the stool at any time. He had a mild attack of "bowel trouble" during the influenza epidemic in September, 1918, at which time he was away from work about a week. I attended him then, but his true condition was not even suspected, much less recognized. A mild cathartic, rest in bed, and restricted diet relieved the entire situation. He had no other attack until the present one, May 14 and 15, 1919. I saw the patient early on the morning of the 15th. He had had a bad night and seemed desperately ill, with pain and tenderness in the left lower abdomen. On manual examination the entire abdomen was rigid, but more so on the left side. The legs were drawn up and respiration was short and grunting. The patient could extend his legs, but complained on straightening out his left leg. There was faulty left leg flexion on the abdomen with manual pressure over the tender area. He had a temperature of 100.4, pulse 88, respiration from 22 to 24. A tentative diagnosis of an acute pathologic condition of the structures in the left side of the abdomen was made, and the patient was taken to the hospital. Morphin sulphate, one-fourth grain, was administered hypodermically before he left home, and blood and urine examinations were made immediately on his arrival. The urine was negative except for a few hyaline and granular casts. The heart and lungs also were negative. Blood counts revealed 15,000 leukocytes per cubic millimeter, with 83 per cent. polymorphonuclears, which indicated the necessity of immediate operation.

Operative Findings.—At noon, the abdomen was opened in the median line. The bowels were distended with gas and the peritoneum was markedly congested, especially to the left of the incision. The omentum was adherent over a mass in the left flank. There was a moderate increase of fluid. The mass was found adherent to the sigmoid, a part of which it seemed to be when the hand was first put into the abdomen. A cleavage line soon freed the sigmoid of suspicion as to a possible perforating malignant process. As the mass in the hand was freed from the sigmoid and brought up into the wound, it had more the appearance of a malignant process with perforation of the colon into the indurated mass surrounding it than of an acute process. An adjacent *enlarged gland* rather added to this suspicion when I first inspected the mass.

Palpation of the colon from the cecum to the location of the mass showed it to be located in the ascending loop of the transverse colon opposite to and adherent to the sigmoid colon, from which it had just been freed. As the result of a further attempt to determine the exact nature of the lesion, another cleavage line allowed of a partial separation of the mass from the wall of the intestine down to what appeared to be extruded intestinal wall tissue. It was at this time that the actual pathologic condition first dawned on me. Finger dissection, carried around the mass, freed it from the intestinal wall except for rather a short pedicle. The pedicle was double clamped and was cut between the clamps, freeing the indurated mass from the bowel. After removal it was immediately opened and found to contain a fecal concretion, the size of a small filbert, protruding through the ruptured end of the diverticulum. The stump of the pedicle was then tied and phenolated. This completed, the adjacent supposed *enlarged gland*, surrounded by a considerable amount of fat, was investigated by incision through its uninflamed covering. It also was found to contain a fecal concretion. The entire colon was then investigated and found to contain numerous filbert-sized fat accumulations along the surface. These were suspected of being other diverticula, not obstructed. This was later demonstrated to be the case, as shown by a roentgenogram that was taken after the patient had recovered and resumed his former duties. Operative recovery was complicated by superficial wound sepsis, but otherwise recovery was excellent. The postoperative history to date has been negative. The patient considers himself "better than for years."

ROENTGEN-RAY STUDY OF THE GREAT VESSELS

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Roentgen-ray investigation of the living heart was begun more than a decade ago. Groedel,[1] Dietlen,[2] Moritz,[3] Claytor,[4] Merrill,[4] Veith,[5] Bordet[6] and Vaquez[6] were active in forwarding the work. The late Dr. Walter James Dodd took up the subject at the Massachusetts General Hospital some ten years ago, and established a routine method of cardiac examination. A few years later Dr. George W. Holmes[7] added his efforts to those of Dr. Dodd, and has continued the work since the untimely death of the latter. A careful comparison of the percussion outlines with the roentgenographic outlines of the heart was rendered possible through the cooperation of Dr. George C. Shattuck of the medical service of the Massachusetts General Hospital. His findings and an excellent review of the literature were published[8] in 1916. The work of these investigators was for the most part directed toward the study of the heart itself, and the great vessels were considered of secondary rather than of primary importance.

The accurate percussion of supracardiac dulness is often extremely difficult, especially in the presence of obesity. Even when the width of this dulness can be determined with some certainty and the clinician is sure that it is increased, he is sometimes at a loss to interpret the finding. This is due to the comparatively large number of pathologic conditions that may occur in the upper mediastinum. These conditions may be roughly divided into (1) those not involving the great vessels, and (2) those caused by changes in the great vessels.

The first classification includes such conditions as substernal thyroid, enlarged thymus, mediastinal tumor, and enlarged mediastinal glands. The value of the roentgen ray in establishing these diagnoses is well recognized.

It is my object here to describe the roentgen-ray findings in a series of cases falling under the second classification. Six causes of increase in the width of the shadow of the great vessels have been observed, namely, chronic lesions of the mitral valve, causing a dilated pulmonary artery and left auricle; arteriosclerosis; syphilitic aortitis, which may or may not have reached the stage of aneurysm; long continued hypertension; a high diaphragm; and a dilated pulmonary artery, such as occurs with some congenital hearts.

All of the drawings used to illustrate these conditions are traced from "7-foot-plates" made by the teleroentgenographic method. The patient sits erect, with the anterior surface of the chest placed against a casette containing a plate and an intensifying screen. The tube stand is placed behind the patient so that the focal spot of the tube is at a distance of 7 feet from the casette and centered a short distance above a point

1. Groedel: Die Röntgendiagnostik der Herz- und Gefässerkrankungen, Berlin, 1912.
2. Dietlen: Deutsch. Arch. f. klin. Med. **88**: 55, 1906-1907.
3. Moritz: Deutsch. Klin., 1904, Part 2, p. 31.
4. Claytor and Merrill: Am. J. M. Sc. **138**: 549 (Oct.) 1909.
5. Veith: Jahrb. f. Kinderh. **68**: 205, 1908.
6. Vaquez and Bordet: Le cœur et l'aorte, ed. 2, 1918.
7. Holmes, G. W.: The Use of the X-Ray in the Examination of the Heart and Aorta, Boston M. & S. J. **179**: 478 (Oct. 10) 1918.
8. Shattuck, G. C.: How We Can Detect Slight Enlargement of the Heart, Boston M. & S. J. **174**: 384 (March 16) 1916.

midway between the angles of the scapulae. The exposure is made during normal respiration in order that there may be no errors due to abnormal positions of the diaphragm. It is important that the patient be placed squarely against the casette, because slight rotation will cause distortion of the cardiac shadow. Exposures of from fifteen to twenty seconds are used.

A silhouette of the heart and great vessels is obtained which is practically free from distortion and may be used for mensuration. In order to emphasize the shape of the silhouettes, outline drawings have been traced from the plates. These drawings represent the borders of the heart and great vessels, the approximate positions of the diaphragmatic domes, and the inner borders of the thoracic cavity. The histories and clinical findings are taken from the clinical records of the Massachusetts General Hospital.

Although this paper deals for the most part with the roentgenographic appearance of the heart, the reader is not to infer that fluoroscopic examinations are not of considerable value. A fluoroscopic tracing of the outline of the heart and great vessels made while the patient faces the observer is a routine procedure used by the roentgen-ray department at the Massachusetts General Hospital. A second tracing is made of the aortic arch with the patient rotated until the shadow of the structure has attained its narrowest transverse dimension. The latter procedure sometimes makes possible a differential diagnosis between a dilated tube and a tortuous one. The patient possessing the dilated aorta cannot be rotated into any position in which the shadow of the aortic arch does not seem wider than normal. The arch which appears wide in an anteroposterior view, as a result of tortuosity, is likely to possess a normal width when viewed laterally because the tube is not dilated. The lateral observation may be a difficult one to make particularly when the subject is obese and the hilum markings are much thickened.

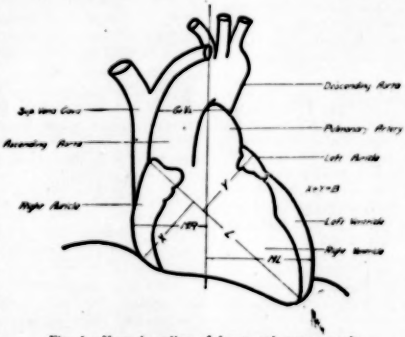

Fig. 1.—Normal outline of heart and great vessels.

Before speaking of the abnormal, it is perhaps best to describe the normal heart silhouette. Figure 1 represents the shape of the heart and great vessels as they lie in the thorax after the sternum has been removed, the lungs and pleura retracted, and the pericardium dissected away. It is evident that all of the chambers of the heart, except the right ventricle, form portions of the silhouette outline.

In considering the great vessels, it is important to remember that the superior vena cava casts little or no shadow on a roentgen-ray plate, and that the right border of the vessels, as shown in the roentgenogram, is in reality the right border of the ascending aorta. Comparison of this drawing (Fig. 1) with the cardiac outline shown in Figure 2 reveals the meaning of each curve in the roentgenogram, i. e., the right auricle below and the ascending aorta above form the right side of the shadow, while the left side is made up of the descending aorta, the pulmonary artery, the left auricular appendage, and the left ventricle. Of course, not all of these structures are always sufficiently prominent to be made out. The pulmonary artery and the left auricular appendage rarely stand out so that they may be differentiated, except in disease of the mitral valve.

It is well in the beginning to establish the normal width of the aortic arch. This cannot be done with absolute accuracy, but within broad limits it may be said that for persons weighing between 100 and 200 pounds the greatest distance between the right border of the ascending aorta and the left border of the descending aorta, as seen on a 7-foot-plate, is normally between 4.5 and 6 cm.

CHRONIC ENDOCARDITIS

When the mitral valve is damaged, whether the lesion be stenosis, insufficiency, or a combination of the two, there results a derangement of the mechanical balance in the cardiac apparatus. After a time the auricles and pulmonary artery increase in size. The left auricular appendage and the pulmonary artery may become so large that they overlie the left border of the descending aorta and extend upward to the crest of the arch. When this occurs, the supracardiac dulness is definitely increased to the left. This condition is well illustrated by Figures 2 and 3, which represent chronic cases of double mitral disease.

In Figure 2 the pulmonary artery has not become sufficiently enlarged to overlie completely the left side of the arch, but Figure 3 illustrates this more advanced condition. It is of interest to note that the width of the aortic arch is 6.3 cm. in the first case, and 5 cm. in the second, while the actual width of the great vessels is considerably greater in both cases.

ARTERIOSCLEROSIS

Arteriosclerosis is primarily a disease of the intima, and consequently no great changes in the diameter of the aortic tube are to be expected. However, after fibrosis and calcification set in there may be a derangement of the course of the tube, especially when hypertension is present, and tortuosity of the aorta results. The appearance seems to suggest that the artery has increased in length. This tortuosity shows itself in the roentgenogram as an increased prominence of the aortic "knob" (that is, the portion of the ascending aorta which passes backward to the left of the spine just before becoming the descending aorta) and in a tendency of the descending aorta to swing well to the left of its normal position. In the oblique view the upper portion of the arch may be "clubbed," but the width in the midportion is usually normal. Calcified plaques can be shown only very rarely.

Figure 4 shows a tracing of the heart of a man past 60 years of age who had suffered from attacks of anginoid pain. The heart is not enlarged, the blood

pressure is not elevated, and there is nothing normal made out on physical examination of the heart. No evidence of syphilitic infection is obtainable at present. The aortic arch is definitely widened, and the left border of the descending aorta lies to the left of its normal position. This finding, taken with the history of lead poisoning and the thickening of the peripheral arteries, points to the presence of arteriosclerosis.

The amount of arteriosclerosis as indicated by the shape of the aortic arch is slight in this case, and yet the presence of any sclerotic process in the arch makes it seem probable that an involvement of one or both of the coronary arteries may be causing the attacks of anginoid pain.

Figure 5 portrays the shape of the heart and great vessels of another man about 60 years of age who complains of no cardiac symptoms, and yet shows a marked tortuosity of the arch, an enlarged heart, and a high blood pressure. Here also are found a systolic murmur in the aortic area and an accentuated aortic second sound which accompany a diseased intima and a high blood pressure. The aortic arch measures 1.1 cm. more in this case than in the previously mentioned one, and yet there are no symptoms. This may be explained by assuming that the process is a diffuse one which has not involved the coronary arteries so much as the aorta itself.

The roentgenogram is of no direct value in ascertaining the condition of the coronary arteries, and is, therefore, of more diagnostic than prognostic importance. It is clear that the width of the sclerotic arch indicates little as regards the general condition of the patient, but it offers another link in establishing the diagnosis of arteriosclerosis of the aorta.

It is customary to look for arteriosclerosis in patients past 60 years of age, and yet the condition occasionally occurs in younger persons. Figure 6 shows the heart and great vessels of a woman of 39 who is known to have had hypertension and external signs of arteriosclerosis for six months. Here, as in Figure 5, the outlines of the "knob" are covered by a prominent descending aorta. It is very probable that the aortic tube itself is somewhat widened as a result of the hypertension. The heart is enlarged principally in its long diameter. The physical signs seem to indicate that this heart is very similar to the one shown in Figure 5. The only added feature is a relative insufficiency of the mitral valve. No definite clinical signs of kidney damage are obtainable, and there is no evidence pointing to syphilitic infection.

Still another case of marked arteriosclerosis is shown in Figure 7. The symptoms in this case practically all point to sclerotic changes in the cranial vessels, and the laboratory findings indicate that the kidneys are damaged, also probably as a result of renal blood vessel changes. The roentgenogram shows a definite "knob" at the crest of the aortic arch, and the left border of the descending aorta swinging well to the left. The long diameter of the heart is increased. The vascular system in such a case would doubtless show extensive generalized sclerosis at necropsy.

SYPHILIS

The predilection of *Spirochaeta pallida* for the aortic arch is well known. Douglas Symmers [9] found syphilitic aortitis in 55.7 per cent. of 314 old syphilitic cases coming to necropsy.

Arthur R. Elliott [10] says:

> From the practical clinical standpoint, accumulating evidence is forcing the conclusion that a persistently positive Wassermann reaction in a patient without evidence of syphilis in the skin, mucous membranes or nervous system points to the aorta as the next most probable seat of the disease.

Lenz writes that, in large cities, 25 per cent. of all syphilitic deaths is due to aortitis and its consequences.

Warthin is said to have discovered active lesions in the aorta of every case of latent syphilis that he examined.

Syphilis of the aorta is certainly not uncommon, but it is sometimes difficult to recognize. The process is likely to originate in the ascending aorta, often just above the aortic valve. The organisms enter the walls of the vessels by way of the vasa vasorum, destruction occurs after a time, and the stiffness of the wall slowly disappears. As a result, the pressure of the blood stream coming from the left ventricle causes a dilatation and change in outline of the great vessel. If the spirochete always limited its activities to one small portion of the aorta, the discovery of this localized dilatation by means of the roentgen ray would make the diagnosis fairly certain. However, different

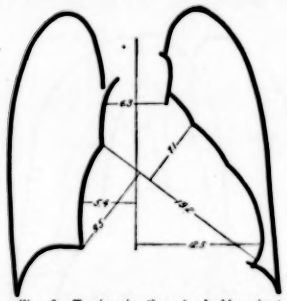

Fig. 2.—Tracing in Case 1, double mitral disease.

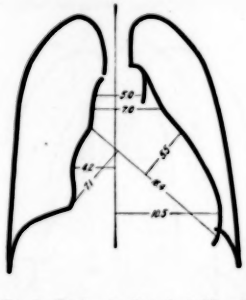

Fig. 3.—Tracing in Case 2, double mitral disease with increased supracardiac dulness.

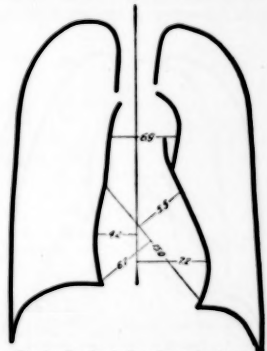

Fig. 4.—Tracing in Case 3, arteriosclerosis.

9. Symmers, Douglas: Anatomic Lesions in Late Acquired Syphilis, J. A. M. A. **66**:1457 (May 6) 1916.
10. Elliott, A. R.: Syphilitic Aortitis, M. Clinics of N. Am. **1**:1305, 1918.

authorities give the percentage of cases of aortitis which is so localized as between 15 and 30 per cent. of all of those coming to necropsy. It seems possible that the percentage may be higher among the living, for it often takes more than a localized dilatation to produce death and bring the subject to the postmortem table.

Sir Clifford Allbutt [11] has called attention to cases of dilatation of the aorta noted in the French and British literature in which the etiology was thought to be rheumatic fever, septicemia, phlegmonous inflammation of the hand, and influenza. If such cases are authentic, they are extremely rare.

In most cases one is probably safe in assuming syphilis to be the cause of a localized bulging of the aorta, particularly when this abnormality occurs just above the aortic valve. Figures 8, 9 and 10 illustrate this type of case. Each roentgenogram shows a definite prominence at the base of the ascending aorta. Some of the signs of arteriosclerosis are also present, but early arteriosclerosis is not unusual in syphilitics.

The patient showing aortitis usually is between 30 and 50 years of age, and gives a history of infection some fifteen to twenty years previously. One expects to find a systolic murmur in the aortic area and also a diastolic murmur, together with a diminished to absent aortic second sound if the aortic valve is involved. It is often true that these signs may be elicited only in certain positions, with the lungs deflated.

Figure 10 is rather interesting because of the numerous diagnoses made. This woman was in and out of the hospital during a period of eight years, and the very multiplicity of diagnoses would argue against their correctness. Her precordial pain and dyspnea on exertion should have suggested the possibility of aortitis. This possibility was probably ruled out because of the negative Wassermann reaction; but it is now a rather general belief that a negative Wassermann reaction does not rule out syphilis.

It is the diffuse dilatation of the arch that offers the greatest difficulties in diagnosis from the roentgenologic point of view. Syphilis is not the only condition producing a wide aortic arch. When a diffuse dilatation does occur, it should be explained on the basis of the clinical findings and the patient's story. Figure 11 illustrates this point. The arch appears to be dilated and is definitely wider than normal, but is also tortuous, and shows the characteristics of arteriosclerosis. The auscultatory findings, the blood pressure, and the condition of the peripheral arteries point to arteriosclerosis. There are two pulsating masses in other parts of the body thought to be aneurysms. The definite bulging of the ascending aorta to the right is more characteristic of a dilated tube than of a tortuous one. It seems probable that both arteriosclerosis and syphilis are etiologic factors in the production of this picture.

Syphilis of the aortic arch is usually a progressive process, and it may go on to one or more of three endpoints, namely, aneurysm, partial or total occlusion of the coronary arteries, and sclerosis and retraction of the cusps of the aortic valve. Aneurysm, except when it occurs in some rare location, can be shown without difficulty on the roentgenogram. No direct evidence of involvement of the coronary arteries can be obtained; but when aortic regurgitation occurs, the increased length of the heart and the prominence of the curve of the left ventricle suggest its presence.

Figure 12 presents the combination of such a heart, with a wide aortic arch and the clinical signs of a diseased aortic valve. It would seem reasonable to explain this picture by assuming that the widening of the arch occurred first as a result of a syphilitic aortitis, which process later extended down to the aortic valve, causing sclerosis and retraction of the cusps and giving rise to aortic regurgitation. Later, the increased load on the left side of the heart caused lengthening of the cardiac outline and hypertrophy of the left ventricle.

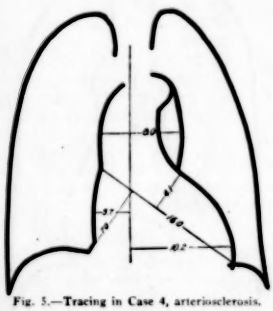

Fig. 5.—Tracing in Case 4, arteriosclerosis.

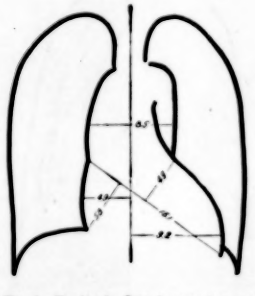

Fig. 6.—Tracing in Case 5, precocious arteriosclerosis with hypertension.

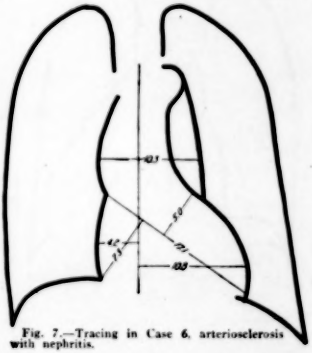

Fig. 7.—Tracing in Case 6, arteriosclerosis with nephritis.

HYPERTENSION

Hypertension is often spoken of as a cause of dilatation of the aorta. The ascending portion receives the full force of the blood expelled from the left ventricle, which is usually much hypertrophied in cases of hypertension, so that it seems reasonable to expect a certain amount of stretching of the aorta. The process is in all probability a slow one, and the small number of cases studied indicates that it requires months rather than days for its completion. Smith and Kilgore,[12] in 1915, called attention to the wide

11. Allbutt, Sir Clifford: Diseases of the Arteries, Sect. 1, p. 143.

12. Smith and Kilgore: Dilatation of the Arch of the Aorta in Chronic Nephritis with Hypertension, Am. J. M. Sc. 149: 503 (April) 1915.

arches observed in a series of fourteen cases of chronic nephritis with hypertension. These patients had systolic blood pressures between 185 and 250, were between 30 and 50 years of age, and all showed negative Wassermann reactions.

Syphilitic aortitis is likely to occur between the ages of 30 and 50 years, and often is accompanied by some hypertension. Both conditions are therefore to be kept in mind when one is considering a widened arch in a person of middle age.

Arteriosclerosis in a more or less marked degree is not an uncommon finding in cases of hypertension, especially after the age of 50. The dilatation might be explained in some cases as a result of the influence of a high tension exerted against a weakened, sclerotic vessel wall.

Figures 13 and 14 show the hearts and great vessels of two patients with chronic cardiorenal disease, in which hypertension is an outstanding feature. The width of the great vessels is greater than normal in both cases. It is impossible to divide the left border into its component parts in this picture, and the border of the descending aorta cannot be definitely located. The aortic knob stands out prominently, and the heart

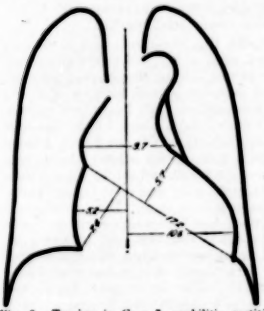

Fig. 8.—Tracing in Case 7, syphilitic aortitis.

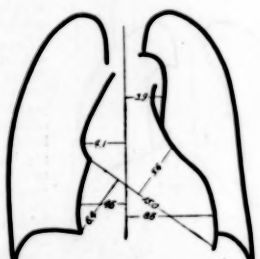

Fig. 9.—Tracing in Case 8, syphilitic aortitis and tremor of syphilitic origin.

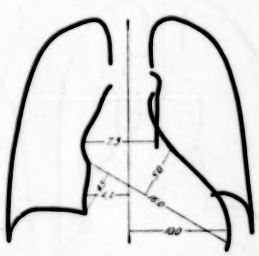

Fig. 10.—Tracing in Case 9, long unrecognized syphilitic aortitis.

is much enlarged, and presents a prominent left ventricular curve. The prominent knob suggests arteriosclerosis, and the part which that process plays in the widening of the shadow of the great vessels cannot be definitely stated. Suffice it to say that hypertension is at least a factor in the production of increased supracardiac dulness.

HIGH DIAPHRAGM

The frequency with which wide aortic arches occurred in obese persons who showed no definite evidence of cardiac disease made it seem probable that obesity might be related to the width of the great vessels. After some study it became apparent that the wide arches usually occurred in the type of patient who possessed a high diaphragm as a result of a large amount of abdominal fat. The outlines of three arches of this kind are shown in the upper portion of Figure 15.

The larger drawing in Figure 15 was prepared to show the effect of a high diaphragm on the width of the aortic shadow in a normally proportioned person. It is evident that the dotted outline traced from a plate made in full expiration is much wider than the solid outline, which represents the size of the great vessels during normal breathing. Obesity in itself probably has no influence on the width of the great vessels. The cardiac outline shown in Figure 16 was traced from a 7-foot plate of an active, rather obese man weighing 220 pounds. The diaphragm was normally placed, and showed normal excursion when studied fluoroscopically. There was no abnormal width of the aortic shadow in this case. It seems, therefore, that a high diaphragm is in itself a cause of widening of the aortic arch. This fact should be kept in mind in such conditions as pregnancy, abdominal tumor, subphrenic abscess, ascites, extensive pleural adhesions, and extreme obesity.

DILATED PULMONARY ARTERY

The increased supracardiac dulness resulting from an enlargement of the pulmonary artery and left auricle in mitral disease has already been discussed. There are certain rare conditions in which the pulmonary artery alone is dilated; and when this occurs, the dulness extends much farther to the left than it should normally.

A striking example of this type of heart is shown in Figure 17. This man, aged 26, gives a history of repeated pulmonary infection during the greater part of his life. The pulmonic second sound is markedly accentuated, and a definite shock, synchronous with the second sound, may be felt when the hand is placed on the chest in the precordial area. The electrocardiogram shows a definite right ventricular preponderance. These signs point to an elevated blood pressure in the pulmonary circulation which might produce a dilatation of the pulmonary artery. Such dilatation should produce a picture similar to that shown in Figure 17.

This case has been variously diagnosed as congenital heart, obstruction in the pulmonary circulation, and mitral stenosis. Be the diagnosis what it may, the roentgenogram seems to identify the enlarged pulmonary artery as the cause of the increased supracardiac dulness. Here, then, is a rare condition in the upper mediastinum which presents roentgen-ray evidence of no little diagnostic value.

DIFFERENTIAL DIAGNOSIS

The roentgenologist can draw some conclusions from his findings without clinical aid. The mitral type of heart and the type presenting a dilated pulmonary artery give rather typical silhouettes, and can usually be recognized. A high diaphragm is an evident condition, especially when viewed fluoroscopi-

cally. The sclerotic arch presents a prominent "knob" and descending portion when seen anteriorly: a clubbing at the crest and a normal width when seen obliquely. There are left the two conditions that produce dilatation of the aortic tube, namely, hypertension and syphilitic aortitis. A localized dilatation indicates the latter condition. A general dilatation may be due to either.

A large, hypertrophied heart accompanies a widened arch resulting from long continued hypertension. A diffusely dilated arch accompanied by a small normal, or slightly dilated heart is therefore likely to be caused by syphilis. Of course, after the syphilitic process has involved the aortic valve and the left ventricle becomes hypertrophied, the general appearance resembles that caused by hypertension.

In aortic regurgitation, the hypertrophy of the left ventricle is much greater than that of the right. In hypertension, both ventricles show hypertrophy to about the same degree. As a result, the distance across the base of the heart as well as the length is increased, and a generally enlarged organ results. The heart outline in regurgitation is increased downward and to the left, but the distance across the base (*B* in Fig. 1) is not much greater than normal. This difference is not always outstanding, but it sometimes gives a clue to the correct diagnosis in difficult cases.

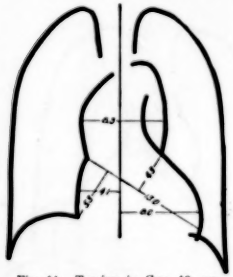

Fig. 11.—Tracing in Case 10, multiple aneurysms.

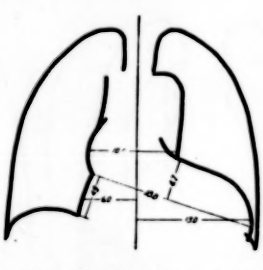

Fig. 12.—Tracing in Case 11, syphilitic aortitis and aortic regurgitation.

This system of differential diagnosis seems simple and so it would be were it not for the fact that widening of the great vessels is practically never due to a single etiologic factor. Syphilis is quite often accompanied by arteriosclerosis. A certain degree of arteriosclerosis is a very common finding in cardiorenal disease with hypertension. The obese patient with a high diaphragm is the one most likely to show a high blood pressure, and he may also have a syphilitic infection. Obviously, the problem is not always a simple one.

SUMMARY

There has in recent years been an ever increasing tendency to use the roentgenogram in the diagnosis of syphilitic aortitis. That it is a very valuable adjunct to the clinical findings there can be no doubt; but I wish to emphasize the importance of a conservative interpretation of a widened shadow of the great vessels.

Arteriosclerosis, hypertension, chronic endocarditis, a high diaphragm, or a dilated pulmonary artery may give a similar picture, and it is perhaps wiser for the roentgenologist to suggest the diagnosis of aortitis only in those cases that show a localized prominence at the base of the ascending aorta.

It is the exception rather than the rule to find a single cause underlying increased supracardiac dullness.

The occurrence of syphilitic aortitis, arteriosclerosis, hypertension, and a high diaphragm in the same patient is not so very uncommon.

REPORT OF CASES

Case 1 (231479, Fig. 2).—*Double mitral disease.*—A white man, weighing 172 pounds, had had an attack of precordial pain, not very severe, at the age of 12; gonorrhea at 17 and again at 18, and a second attack of precordial pain at 20. He drank much whisky, beer, tea and coffee. There was no history of children's diseases or tonsillitis. Seven months before examination he had been in bed one week with dyspnea, palpitation and precordial pain. There was no cough, edema, hemoptysis or fever. One week before he had had a more severe attack beginning with a feeling of constriction in the epigastrium followed by dull precordial pain and palpitation. He could sleep only in the sitting position. The pulse rate was 102. The sounds were irregular. The pulmonic second sound was greater than the aortic second sound. There was a loud, blowing, systolic murmur at the apex transmitted to the axilla. There was a short presystolic roll. There were no thrills. The systolic blood pressure was 100, the diastolic, 70. The arterial walls were not palpable. The renal function was 45 per cent., the Wassermann test, negative.

Case 2 (233383, Fig. 3).—*Double mitral disease.*—A white girl, aged 16, had had severe attacks of chorea at intervals during the greater part of her life, and pneumonia and pleurisy about a year before examination. She began to complain of nausea, epigastric pain, edema of the feet and hands, and dull aching pain in the hands, elbows and knees about four months before. About two months before, she began to have dyspnea, palpitation and precordial pain, and went to bed, where she had remained ever since. During the past three weeks there had been much vomiting, some cough, and a sharp knifelike pain between the scapulae. The patient weighed 98 pounds and possessed a very ruddy complexion which bordered on cyanosis. The tonsils were ragged and hypertrophied. The sounds were regular, rapid and of fair quality. The pulmonic second sound was greater than the aortic second sound and accentuated. There was a presystolic roll at the apex followed by a soft, musical systolic murmur transmitted to the axilla. There was a thrill at the apex. The arterial walls were not palpable. The systolic blood pressure was 105, and the diastolic, 70. There was edema of the feet and ankles. The throat consultant noted that pus could be squeezed from the tonsils. The white blood count ranged from 13,000 to 14,000 per cubic millimeter. The Wassermann test and blood culture were negative. Roentgenoscopy revealed many pus pockets about the roots of the teeth.

Case 3 (232013, Fig. 4).—*Arteriosclerosis.*—A white man, aged 62, had diphtheria at 9 years of age; scarlet fever (?) in childhood; gonorrhea at 20; pneumonia at 40; penile sores at 45, and painters' colic at 50. His wife has had three miscarriages and one stillborn child. He chewed tobacco, but did not use alcohol. Sensations of constriction in the chest accompanied by hot, swollen sensations in the hands began one and one-half years before examination. The attacks lasted only a few minutes, and occurred about once a week. Nitroglycerin gave relief. The attacks had been becoming worse and more frequent, and seemed to be brought on by exertion. They were now accompanied by dyspnea and palpitation. There was no edema. He was much more comfortable while in bed. The patient weighed 120 pounds. The cardiac impulse was seen and felt in the fifth space. The sounds were regular and of fair quality; not rapid. The pulmonic second sound equaled the aortic second sound; not accentuated. There were no murmurs or thrills. The

arterial walls were sclerotic. The brachials were not tortuous. The systolic blood pressure was 150; the diastolic, 74. The liver edge was palpable and slightly tender. The knee jerks were equal and active. The renal function was 60 per cent.; the urine, negative; hemoglobin, 75 per cent.; the Wassermann test, negative.

CASE 4 (233131, Fig. 5).—*Arteriosclerosis.*—A white man, aged 60, with no history of "rheumatism," and who denied venereal infection, had had some nocturia for several years, but no illness except attacks of pain in the right upper quadrant twelve years ago. These attacks were severe enough to require morphin. He now complained of burning pain in the right lower quadrant occurring in attacks during the past eight months. He had had occasional dizzy spells, but no dyspnea, edema, precordial pain, headaches or visual disturbances. He was well nourished and weighed 154 pounds. The heart sounds were regular and not rapid. The aortic second sound was greater than the pulmonic second sound and accentuated. There was a soft systolic murmur at the base transmitted to the neck. The systolic blood pressure was 220, and the diastolic, 110. The palpable arteries were sclerotic and tortuous. The pulse was of good volume and tension.

The urine showed nothing definitely abnormal. The nonprotein nitrogen in the blood was 44.8 mg. per hundred c.c. The Wassermann test was negative. A cardiogram detected no ventricular preponderance.

CASE 5 (233568, Fig. 6).—*Precocious arteriosclerosis with hypertension.*—A white woman, aged 39, with no history of "rheumatism" or miscarriages, who denied venereal infection and whose "tubes and ovaries" had been removed eleven years before for pelvic abscess, had been weak and tired and subject to "hot flashes" and "cold sweats" since the age of 18. Dyspnea began three years before we saw her. About two years before she began to have palpitation and severe headaches accompanied at times by vomiting, dizziness, staggering and stars before the eyes; and on two occasions, everything turned black before her eyes. During the past year these symptoms had been less marked, but there had been some edema of the ankles, and a numb feeling in the right leg and arm at intervals. There had been no nocturia or other urinary symptoms. The patient was pale, and weighed 112 pounds. There was marked venous pulsation in the neck. The sounds were regular and rapid and of good quality. The aortic second sound was greater than the pulmonic second sound and much accentuated. There was a reduplicated first sound and a systolic murmur at the apex transmitted to the axilla. There was a systolic murmur in the aortic area not transmitted. Very questionable thrills were observed at the apex and at the aortic area. No presystolic murmur was detected. The arterial walls were palpable. The brachials were tortuous. The systolic blood pressure was 270 and the diastolic, 190, six months before, and now 210 and 140. The urine showed nothing abnormal except the slightest possible trace of albumin and rarely a white cell at numerous examinations. There was no fixation of gravity or retention of chlorids. The renal function was 60 per cent. Nonprotein nitrogen was 35.9 mg. per hundred c.c. of blood. The Wassermann test was negative twice.

CASE 6 (232022, Fig. 7).—*Arteriosclerosis with nephritis.*—A white man, aged 64, had had scarlet fever in childhood; was ill several months twenty years before we saw him with nausea, diarrhea, vomiting and abdominal pain; had had "grip" four years before, and generalized edema with headache, blurring of vision and delirium three years before. A "shock" occurred one year before, when he was unconscious for twenty-four hours. There had been some weakness in the left arm and leg since. The patient denied venereal infection. He felt weak and tired. He still had weakness of the left arm and leg, and had attacks of dizzy sensations accompanied by vomiting, a feeling of pressure in the head, and a general numb feeling. He weighed 175 pounds. The pupils were irregular. The cardiac impulse was seen and felt in the sixth space. No thrills were heard. The sounds were regular and of fair quality, but rapid. The aortic second sound was greater than the pulmonic second and accentuated. No murmurs were detected. The arterial walls were palpable, the brachials not tortuous. The systolic blood pressure was 208, and the diastolic, 120. The knee jerks were normal. The urine, at two examinations, showed a trace of albumin, a specific gravity of 1.020 and 1.023, and frequent hyaline and granular cases. The renal function was 12 per cent. The Wassermann test was negative.

CASE 7 (Outpatient Department 392675, Fig. 8).—*Syphilitic aortitis.*—A negro man, aged 45, gave no history of "rheumatism." He had sore throats as a child. He drank much alcohol. He had gonorrhea at 25, and a penile sore at the same time that lasted for one month. He had had some precordial pain, occasional headaches, attacks of weakness and shortness of breath for the last year. He weighed 136 pounds. The pupils were equal, and reacted. The right epitrochlear gland was palpable. There was a systolic murmur at the apex transmitted toward the base and the axilla. The pulmonic second sound was accentuated. There was a short systolic murmur at the base transmitted to the neck. No definite diastolic murmurs were made out. The liver edge was palpable. The knee jerks were equal. The urine showed the least possible trace of albumin and a few white blood cells. The Wassermann test was negative.

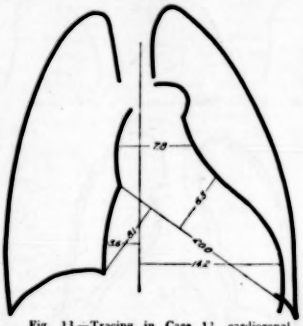

Fig. 13.—Tracing in Case 12, cardiorenal disease.

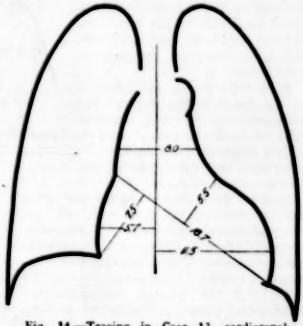

Fig. 14.—Tracing in Case 13, cardiorenal disease.

CASE 8 (Outpatient Department 392688, Fig. 9).—*Syphilitic aortitis and a tremor of syphilitic origin.*—A white man, aged 43, had had typhoid, scarlet fever and gonorrhea; also a penile sore some years before. A slight tremor appeared in the left arm five years before, and remained constant and of the same intensity for three years. It then extended to the left leg and right arm, and for two years had been getting worse. There had been some shooting pains recently in the legs. Otherwise the patient felt well and strong. He weighed 140 pounds. The left arm showed a constant tremor. The right arm and left leg showed the same phenomenon to a less degree. The tremor diminished while purposeful movements were being performed. The right pupil was slightly irregular. There was no reaction to light and distance. There was a slight systolic murmur in the aortic area. The aortic second sound was greater than the pulmonic second sound. The systolic blood pressure was 170; the diastolic, 110. The lungs were negative. The knee jerks were absent. The blood Wassermann test was moderately positive. The spinal fluid

showed 31 cells per cubic millimeter, an increased pressure, and a strongly positive Wassermann reaction.

CASE 9 (Outpatient Department 181357, Fig. 10).—*Syphilitic aortitis long unrecognized.*—In 1911 a Jewish woman, aged 50, weighing 155 pounds, complained of continual cough with nonpurulent sputum, dyspnea, pain in the throat and back, and some incontinence of urine. The aortic second sound was accentuated; the heart was not enlarged to percussion. The systolic blood pressure was 150, and the bases of the lungs were full of râles. A diagnosis of bronchitis was made.

In 1912 the cough was still present, and was worse at night. The patient raised little and felt weak. No murmurs could be made out on heart examination. The blood pressure was noted as 130/80.

In 1913 the cough was worse but nonproductive. There was marked dyspnea on exertion. The aortic second sound was greater than the pulmonic second sound. A soft systolic murmur was heard in the aortic area. The blood pressure was noted as 135/90.

In 1914 the old symptoms were still present. Pain had appeared in the left part of the back and in the wrists and ankles.

In 1915 the systolic blood pressure was noted as 180. The patient was treated in the dental clinic for apical abscesses; in the throat room for pain in the throat, without a definite diagnosis, and in the orthopedic department for pains in the wrist and ankles. All of this treatment failed to clear up the original symptoms.

In 1916 the patient was admitted to the hospital for study. The Wassermann test was negative. After a week the patient was discharged with a diagnosis of: question of cholecystitis, chronic pyelitis, cystitis, and a question of mitral disease.

In 1917 the patient was admitted to the hospital the second time and was discharged with the diagnosis of senile heart, chronic arthritis, obesity and a question of myxedema. The blood pressure was noted as 140/90.

In 1919 the patient complained of hoarseness, cough, a feeling of anxiety, dyspnea, and some palpitation. The heart sounds were regular and distant; a systolic murmur was heard all over the precordia, transmitted to the neck; there was a diastolic murmur in the aortic area.

CASE 10 (231966, Fig. 11).—*Multiple aneurysms.*—A white woman, aged 50, who had been married thirty years, whose husband, she said, was well, who had had one child that lived to be 21 but died of tuberculosis, and four miscarriages, who had had no diseases of childhood, but "gastric catarrh," evidenced by abdominal distress and backache for many years, and who did not use alcohol, for the last five months had had an attack of dizziness and vomiting about once a week. The attacks lasted one or two days. She was well between the attacks. At times she had a pain in the back which was made worse by exertion and which on several occasions had been transmitted down the left arm and had been accompanied by tingling in the fingers. There had been progressive loss in weight, amounting to 70 pounds in four years, and the patient now weighed 100 pounds. A small, pulsating mass could be felt and seen in the base of the neck on the right side. A systolic bruit was heard over this tumor. There was a firm, round, somewhat tender pulsating mass in the right upper quadrant of the abdomen about the size of an orange. No bruit was heard over this tumor. The heart sounds were regular, rapid and of fair quality. The aortic second sound was greater than the pulmonic second sound and slightly accentuated There was a loud, blowing, systolic murmur at the base, heard best over the aortic area and transmitted to the neck. There were no thrills. The systolic blood pressure was 225, and the diastolic, 140. The arterial walls were palpable, tortuous and markedly sclerosed. The urine showed a slight trace of albumin and a few red and white cells at two examinations. The red count was 3,000,000. Hemoglobin was 70 per cent. The Wassermann test was negative.

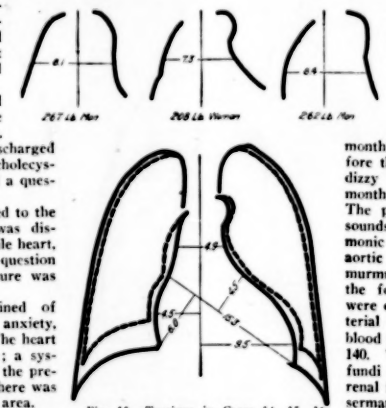

Fig. 15.—Tracings in Cases 14, 15, 16 and 17, with widening of the shadow of the great vessels due to a high diaphragm.

CASE 11 (Outpatient Department 404570, Fig. 12).—*Syphilitic aortitis and aortic regurgitation.*—A negro, man, aged 61, had had pneumonia twice, and gonorrhea twenty-five years before. He had been married thirty years; the wife had never been pregnant. For about eight months he had been suffering from epigastric distress, dyspnea and palpitation on exertion. There was no edema. He weighed 185 pounds. The systolic blood pressure was 200; the diastolic, 80. The knee jerks were absent, the pupils sluggish. The brachial arteries were sclerosed and tortuous. The patient had a Corrigan pulse. There was a double murmur in the aortic area and a diastolic murmur to the left of the sternum. The aortic second sound was absent. There was a pistol shot sound in the groin. There were visible pulsations in the neck. At one examination, the urine was not definitely abnormal.

CASE 12 (231934, Fig. 13).—*Cardiorenal disease.*—A white man, aged 49, who had had diphtheria at 25, tonsillitis at the same time, and syphilis at the age of 20, and who did not drink steadily but who went on alcoholic sprees, reported that nocturia had begun one year before and had become progressively worse. Severe frontal morning headaches had begun seven months before; there had been attacks of dyspnea during the last seven months; blurring of vision and spots before the eyes for the last three months; dizzy vomiting spells for the last two months, and cramps in the legs recently. The patient weighed 150 pounds. The sounds were regular and rapid. The pulmonic second sound was greater than the aortic second sound. There was a systolic murmur over the precordia heard best in the fourth left interspace. The pulses were equal and of high tension. The arterial walls were palpable. The systolic blood pressure was 210, and the diastolic, 140. The brachials were tortuous. The fundi showed albuminuric retinitis. The renal function was 10 per cent., the Wassermann test negative.

CASE 13 (233130, Fig. 14).—*Cardiorenal disease.*—A man, aged 52, who had no diseases except scarlet fever in childhood, who had always been a heavy meat eater, who used much alcohol until two years before, and who was a heavy smoker, began to complain of dyspnea and a "lazy" feeling about three years before. He had been in the hospital twice before because of a worn-out feeling. Orthopnea became noticeable two weeks before and was accompanied by nocturia and edema of the ankles, lower legs and thighs. There had not been precordial pain at any time. The patient weighed 196 pounds. In January, 1917, the sounds were regular and of good quality. The rate was normal. There was a soft systolic murmur at the apex. The second sounds were accentuated. The liver edge was palpable 2 cm. below the costal margin. An electrocardiogram disclosed left ventricular preponderance. The Wassermann test was negative. The renal function was 30 per cent. The urine showed a specific gravity between 1.020 and 1.024, albumin from a very slight trace to a slight trace, and many hyaline casts. The systolic blood pressure was 180, and the diastolic, 110. In May, 1919, the pulmonic second sound and the aortic second sound were equal. There was a shrill, high-pitched murmur in the mitral area. There was no thrill. The brachials were tortuous. The systolic blood pressure varied between 210 and 230; the diastolic was 140. The renal function was

from 20 to 25 per cent. The urine showed hyaline and granular casts and a specific gravity between 1.012 and 1.020. In October, 1919, the second sounds were accentuated. There was a blowing musical systolic murmur at the apex transmitted to the axilla. The radial arteries were sclerotic and beaded. The systolic pressure was 220, the diastolic, 150. There were râles in the bases of the lungs. There was edema of the ankles and thighs. The fundi showed sclerosed and tortuous arteries and small sclerotic plaques. The urine showed a specific gravity from 1.010 to 1.014, from a trace to a very slight trace of albumin, and hyaline and granular casts. The renal function was 25 per cent.; the hemoglobin, 70 per cent.

CASES 14, 15, 16 and 17 (Fig. 15).—*Widening of the shadow of the great vessels due to a high diaphragm.*—The three upper tracings represent the size and shape of the great vessels in patients weighing more than 200 pounds. In each case there was a high diaphragm probably the result of a large amount of abdominal fat. These sketches are traced from the 7-foot plates. In well-built persons weighing more than 200 pounds and possessing a normally placed diaphragm, the great vessels rarely measure more than 6 cm. in width.

The large drawing represents the shape and size of the heart, great vessels and thoracic cavity of a well-built man, aged 39, weighing 142 pounds. The solid outline was made from a 7-foot plate taken during normal breathing, while the broken outline was traced from a 7-foot plate of the same patient made during forced expiration. This man was a recently discharged soldier who had been leading an active life, and he had a good diaphragmatic excursion. During expiration the diaphragm rises and the chest walls are drawn in. The heart is forced upward, but apparently the upper portion of the aortic arch remains fixed. As a result, the heart and great vessels are compressed, and a widening of their transverse diameters results.

This patient came in complaining of a feeling of fulness in the chest which was worse after meals and had been present for about a year. There were no other symptoms. On auscultation there was a double murmur in both the aortic and mitral areas, and the aortic second sound was sharp. The pulse pressure was a little higher than normal. There was no rheumatic or syphilitic history. The electrocardiograph detected nothing abnormal. The patient was thought to have an early involvement of both the aortic and the mitral valves of rheumatic origin.

CASE 18 (Fig. 16).—*An aortic arch of normal width in an obese man who possessed a diaphragm that was not abnormally high.* — This tracing was made from a 7-foot plate of the heart of a young, active man weighing 220 pounds. He was not of an athletic type and showed considerable subcutaneous fat, but the diaphragm seen fluoroscopically was not pushed up abnormally high as a result of excessive abdominal fat. There were no symptoms, and the man seemed to be normal in every way.

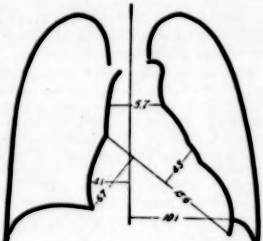

Fig. 16.—Tracing in Case 18; an aortic arch of normal width in an obese man who possessed a diaphragm that was not abnormally high.

CASE 19 (145038, Fig. 17).—*Dilated pulmonary artery.*—A white man, aged 26, who had croupous pneumonia at 12, typhoid and diphtheria at 13, bronchopneumonia (?) at 25, no history of "rheumatism," chancroid (?) eight months before, who had been in the hospital with a "cold" for two weeks about four months before, who had been working but was never "up to snuff," and who had had some precordial pain and dyspnea for the last two years, had complained for the last four days of headaches, "hot and cold" sensations, pains all over the body, and a cough accompanied by pain in the left lower chest. This condition was diagnosed as a mild bronchopneumonia. The patient weighed 124 pounds.

At the age of 12, the heart was outside the nipple line 3½ inches from the midsternum. There was no increase to the right. The action was rapid and regular. The second sound at the apex was accentuated. The pulmonic and aortic second sounds were equal. There was a systolic murmur at the apex not transmitted. The patient had been in the hospital with croupous pneumonia at this time.

At the age of 13 the heart was in the fifth space in the anterior axillary line. There was no increase to the right. The action was rapid and regular. The pulmonic second sound was very much accentuated and equaled the aortic second sound. The first sound was replaced by a systolic murmur heard all over the precordia, loudest in the mitral areas and transmitted to the axilla. The spleen was palpable. The patient was in the hospital at this time with diphtheria and typhoid.

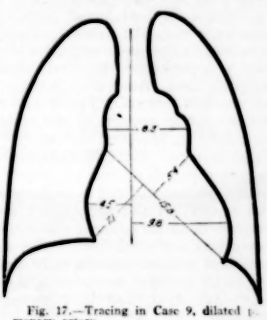

Fig. 17.—Tracing in Case 9, dilated pulmonary artery.

At the age of 25, the heart apex impulse was felt and seen 1 cm. to the left of the midsternal line. The sounds were regular and of poor quality. The pulmonic second sound was accentuated and reduplicated, and equaled the aortic second sound. A short systolic murmur at the apex was transmitted to the axilla. There was a short diastolic murmur just to the left of the sternum. The systolic blood pressure was 110, the diastolic, 60. Roentgenoscopy revealed a prominence of the pulmonary artery and a thickening of the hilum shadows and lung markings. A diagnosis of mitral insufficiency and bronchopneumonia (?) was made at this time.

At present, the impulse is heaving. A sharp slap is felt half way between the pulmonary area and the apex. The pulmonic second sound is greater than the aortic second sound and much accentuated. There is a soft systolic murmur at the apex. The second sound is loudest where the slap is felt, and is synchronous with it. There is no thrill. The systolic blood pressure is 148, and the diastolic, 110. The sputum shows the Type IV pneumococcus, and blood culture, *Staphylococcus albus.*

Children Born Out of Wedlock.—Questions about the legal obligations of parents and of the state to children born out of wedlock are answered in a bulletin entitled "Illegitimacy Laws in the United States and Certain Foreign Countries," issued by the Children's Bureau of the U. S. Department of Labor. Attention is called in this report to the fact that legal provisions for the support of the child born out of wedlock are inadequate—the payments prescribed are often too low, and in most of the states the period of support is too brief, sometimes reaching only to the child's tenth or twelfth year. The report suggests that illegitimacy legislation in the United States might be improved by uniform provision for the establishment of legitimacy; the legitimation of children of null or subsequent marriages; possibility of adoption by the father, and declaration that the relation of mother and child is the same whether the child is legitimate or not. In addition to a critical analysis of illegitimacy legislation in this country, the report contains an analysis of certain phases of the various state laws in tabular form, the complete text of all the state laws, the illegitimacy provisions of the codes of France, Germany and Switzerland, and a reference index to the U. S. illegitimacy laws.

ENCEPHALITIS LETHARGICA IN PREGNANCY *

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The case which I wish to report occurred in a pregnant woman of 35. In reviewing the recent literature, I have found records of only seven other cases of encephalitis lethargica occurring in pregnant women. In the nona epidemic of 1890, no cases complicating pregnancy are mentioned.

Though the fact is not always brought out in the smaller series, the disease appears to be far more common in the male sex than in the female, a point that was emphasized by Neal.[1] Of 189 cases in recent English and American reports, only sixty-seven occurred in women and girls, and of these only thirty-three were in women of the child-bearing age. The mortality is, however, considerably higher in women than in men. Of 122 men, seventy-two recovered, twenty-three died, and in twenty-seven the outcome of the disease had not been determined at the time of the report; of the sixty-seven women, twenty-seven recovered, twenty-four died, and in sixteen the outcome was not yet known. The mortality rate in the pregnant women appears to be particularly high. Of the eight recorded cases, including my own, one recovered, five died, and in two the outcome was not reported.

The first case in this series was reported by Harris.[2] This case occurred in the British epidemic in the spring of 1918, and was considered botulism, as were many of the earlier cases in England.

A young woman who was pregnant, almost at term, ate heartily of tinned salmon, March 28. The following morning she developed diplopia, bilateral ptosis, marked drowsiness, and pyrexia up to 103 F. She was delivered, April 2, without influence on the course of the disease, which had continued with double third nerve paralysis, drowsiness, pyrexia of 100 F., retention of urine and increasingly active delirium up to the time of writing. Examination of the suspected food had shown a large gas-producing, anaerobic gram-positive, probably spore-bearing bacillus which had not as yet been identified.

Duncan[3] in May, 1918, reported a case of a married woman several months pregnant, who had been ill a few days. When first seen she was sitting by the fireside with both eyes closed. She was dull, but spoke when she was addressed. She could raise her eyelids, the right more than the left. There was herpes of the upper lip. The outcome of this case is not stated.

Neal[1] has reported the only case with recovery at the time of writing.

This was a woman of 25 who was five months' pregnant. She had had an attack of influenza two weeks before the onset of the encephalitis, which began gradually with headache, chills and fever, vomiting, sweating and delirium. The spinal fluid showed great increase in cells and protein, a negative Wassermann test and negative guinea-pig inoculation for tuberculosis. Her condition remained the same for two weeks or more. Then she gradually recovered; the facial paralysis cleared up, and she had a normal delivery at term.

Sachs,[4] in a series of seven cases, had three fatalities, of which two occurred in pregnant women. The duration of pregnancy is not stated in either case. In one there was a distinct history of influenza three months before the onset of the attack. Both of these cases presented all the ocular symptoms, the lethargy, and the ataxic and cerebellar symptoms. In one of the cases, in addition to the symptoms of poliencephalitis superior, there was also marked wasting of the muscles of the upper extremity and tremor of the hands. One case showed a spinal fluid with 20 cells. Acetone and diacetic acid were present in the urine in both cases. Both patients were extremely toxic. The question of inducing abortion was considered but rejected, and it was very questionable whether anything would have been gained by it. The total duration of the disease in each case was about four weeks.

Putnam's[5] case was in a woman of 26, who had had two previous normal pregnancies and whose present pregnancy had been normal.

She was found lying on the floor apparently asleep. When aroused, she was weak and dizzy and took no notice of her surroundings. She had no pain except a slight headache and no visual disturbances. Her face was expressionless and her eyes closed. The pulse was 114 and the temperature 99.4 F. The pupils were contracted and she tended to assume cataleptic postures. Her symptoms were at first thought merely hysterical, but her condition did not change, and the pulse rate and temperature remained elevated. Examination disclosed no paralyses, but some rigidity of the extremities and a slight Kernig reflex with some pain on full extension. The eye muscles and face were normal. The leukocyte count was 14,000; the urine was negative; the Widal test proved negative; the spinal fluid showed 11 cells, gave a negative Noguchi reaction and reduced Haines' solution. For the first few days, she awoke spontaneously for food and defecation; later she could be aroused for these functions.

She was delivered three weeks after the onset of her illness. She did not arouse during the four hour labor. The child was stillborn; its heart had not been heard the whole day previous. Four days after delivery the patient died.

Bassoe[6] reports a fatal case with postmortem examination in a woman of 34, an octipara in the sixth month of pregnancy.

This patient complained of listlessness, fatigue and headache. She had some nausea but no vomiting, and moderate fever. The facial expression was dull, and there was a slight facial palsy on the right side. The protrusion of the tongue was weak. The back was somewhat rigid, the deep reflexes on the left side were increased, but there was no rigidity of the extremities. The pupils and eyegrounds were normal. She was mentally dull, slightly confused and disoriented for time. Five weeks after the onset of the disease, hyperpyrexia and pulmonary edema developed and the patient died.

Postmortem examination revealed marked congestion of the veins of the pia, with edema and congestion of the brain and minute hemorrhages visible on the cut surfaces, especially in the white matter of the centrum ovale and the basal ganglions. The ventricles and their ependyma were of normal appearance. Sections from the frontal lobe showed marked distention of the vessels, especially the veins, but there were only very small lymphocytic infiltrations around some of the smaller vessels. In the left motor cortex, the pia was loose in texture with slight increase of cells. There was no definite sign of inflammation in the cortex itself. The left optic thalamus showed very extensive inflammation with large collections of mononuclear cells about the distended vessels. There were no large hemorrhages. All the sections

* From the Woman's Clinic, University of California Hospital.
* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of introductory notes on the history of the disease. The complete article appears in the author's reprints.

1. Neal, Josephine B.: Lethargic Encephalitis, Arch. Neurol. & Psychiatry **2**: 271 (Sept. 1) 1919.
2. Harris, W.: Lancet **1**: 568 (April 20) 1918. McCaw, H. J.: Ibid. **1**: 616 (April 27) 1918.
3. Duncan, J. W.: Brit. M. J. **1**: 551 (May 11) 1918.
4. Sachs, B.: New York M. J. **109**: 894 (May 24) 1919.
5. Putnam, O.: J. Missouri M. A. **16**: 260 (August) 1919.
6. Bassoe, Peter: Epidemic Encephalitis (Nona), J. A. M. A. **72**: 971 (April 5) 1919.

of the pons showed marked inflammatory changes, most pronounced in the dorsal portion, with numerous small hemorrhages. The bulb showed no inflammatory changes.

REPORT OF AUTHOR'S CASE

The case which I wish to report is the following:

Mrs. N. A., a pregnant woman aged 35, entered the obstetric service of the University of California Hospital, April 23, 1919, complaining of edema of the legs and hands of one month's duration, and aching pains in both arms during the previous week. The pregnancy was one month past term. She had had one full term pregnancy six years before, complicated with marked edema, and some eye symptoms and pains in the legs during the last month, which had disappeared shortly after delivery. Her past history was otherwise negative. She had not had influenza, nor had any one in her immediate family.

Physical examination was negative except for the presence of a full term fetus in the left occipito-anterior position, varicosities of both legs with more edema of the legs than these could account for, and moderate edema of the hands.

Her mentality was rather low, but her mind seemed clear. Sensory examination disclosed a slight hyperesthesia to touch and pain over the posterior part of each shoulder; elsewhere sensation was normal. The pupillary reactions were normal. The deep reflexes were somewhat exaggerated, with a false patellar clonus. The left abdominal reflex was increased, the right was doubtful. There was a right sided Babinski reflex. Both hands showed a constant tremor, which increased if the patient tried to control it, but decreased if her attention was diverted. The blood pressure was 140 systolic and 95 diastolic. The urine showed the faintest possible trace of albumin with no casts. Both blood and urinary nitrogen were normal, and blood and urine cultures sterile. As all her teeth had been extracted dental roentgenograms were not taken and there were no other foci of infection demonstrable. The hemoglobin was 55 per cent. Sahli; the blood Wassermann reaction was negative. The temperature on the day of entry was 37.5 C. (99.5 F.), on the following day 37.2 C. (98.9 F.). After this it was normal for five days, until delivery. The pains in her arms persisted and at times were so severe as to require morphin for sleep. April 30, after five hours of normal labor, she was delivered of a child weighing 4,600 gm. (10 pounds). Following delivery she had a low grade fever, never higher than 37.6 (99.7 F.) and therefore not requiring a uterine culture. On the tenth day the temperature reached 38 C. (100.4 F.). It was now noticed that she had become very dull mentally and seemed in a sort of stupor most of the time. She was easily aroused, and when addressed answered rationally and was clearly oriented. She complained of diplopia, and said that the pain in her arms kept her awake at night. A slight ptosis of the left lid and a right sided facial paralysis developed. The Babinski reflex had now disappeared, the other reflexes and the sensory findings remaining about the same. There were no signs of meningeal involvement.

A spinal puncture, May 15, yielded a clear fluid under slightly increased pressure. The Nonne and Noguchi reactions were negative, the cell count was twenty-six and Fehling's solution was reduced. The Wassermann reaction was negative and cultures were sterile. There was no web. A second puncture, May 15, was again sterile. There was a moderate leukocytosis, varying from 12,000 to 18,000 with 80 per cent. polymorphonuclears. A nasopharyngeal culture showed *Bacillus influenzae*. The neurologic signs varied. She developed weakness of the muscles of mastication, tremor of the tongue with protrusion to the right, and then a right external rectus palsy.

About May 23, she began to improve markedly. Her mentality was much clearer, the tremor decreased, the tongue could be protruded normally, and the external rectus palsy was much less marked. The right arm reflexes were still increased, but the other reflexes were normal except for an atypical Oppenheim sign on the right side. The temperature became normal.

May 26, after getting up and walking about her bed without permission, she suddenly developed symptoms of pulmonary embolism and died in twenty minutes, twenty-six days after delivery.

Postmortem examination revealed thrombosis of both femoral veins and extensive bilateral pulmonary emboli, which occluded almost the entire pulmonary circulation. Macroscopically the brain was practically normal except for a few punctate hemorrhages on cut section in the region of the midbrain. The cerebrospinal fluid was normal in appearance and amount. Microscopic examination revealed the characteristic changes of lethargic encephalitis. There was congestion and slight round cell infiltration of the leptomeninges. There were marked perivascular infiltration and a few small hemorrhages about the vessels, especially of the midbrain and pons. There was no degeneration of the nerve cells. The medulla showed much less marked changes; the cerebral cortex was normal.

Clinical Notes, Suggestions, and New Instruments

ADMINISTRATION OF DIGITALIS BY "EGGLESTON METHOD"

CARY EGGLESTON, M.D., NEW YORK

Many requests have been received for information as to the practical application of this method of administering digitalis, and therefore it seems advisable to publish a brief statement regarding the details involved. The reader is referred to the original paper[1] for the data on which the method is based, and to the papers by S. Marx White and R. Edwin Morris,[2] and by R. Edwin Morris,[3] for comments on the method.

This method of digitalis dosage and administration is designed especially for rapid digitalization by oral administration. It depends on the establishment of an average total amount of digitalis which is required to produce full digitalization, or the minor toxic actions of digitalis. This total amount is expressed in terms of the activity of the drug and the patient's body weight in pounds. The activity of the drug is determined by the cat method of Hatcher,[4] described in the *American Journal of Pharmacy*, the unit being the weight of dry drug, in milligrams, which is required to kill 1 kg. of cat when a solution is injected slowly and continuously intravenously. This amount is called a cat unit. High grade specimens of digitalis, when not assayed by the cat method, may be regarded as having an average activity of 100 mg. to the cat unit. The average total amount of digitalis required for oral administration to man is 0.15 of one cat unit per pound of body weight.

CALCULATION OF AVERAGE TOTAL AMOUNT

The calculation of the average total amount required by any given patient may be as follows:

1. The patient's weight is determined in pounds.
2. The cat unit of the digitalis is determined.
3. One of the following formulas is applied:

$$\text{Formula I: } \frac{C.\,U. \times 0.15 \times W}{1{,}000} = \text{Grams of powdered leaf in total amount}$$

$$\text{Formula II: } \frac{C.\,U. \times 0.15 \times W}{100} = \text{Cubic centimeters of tincture in total amount}$$

$$\text{Formula III: } \frac{C.\,U.}{100} \times W = \text{Cubic centimeters of infusion in total amount}$$

In these formulas, *C. U.* is the number of milligrams in one cat unit, and *W* is the patient's body weight in pounds.

1. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.
2. White, S. M., and Morris, R. E.: The Eggleston Method of Administering Digitalis, Arch. Int. Med. **21**: 740 (June) 1918.
3. Morris, R. E.: Clinical Pharmacology of Digitalis, Minnesota Med. **1**: 125 (April) 1918.
4. Hatcher, R. A., and Brody, J. G.: The Biological Standardization of Drugs, Am. J. Pharm. **82**: 360, 1910.

The following example illustrates the use of these formulas: A patient weighs 150 pounds, and the digitalis available has an activity of 100 mg. to the cat unit. Applying Formula I for the powdered leaf, we have $100 \times 0.15 = 15$; $15 \times 150 = 2{,}250$; $2{,}250 \div 1{,}000 = 2.25$ = grams of leaf in total amount. Applying Formula II for the tincture, we have $100 \times 0.15 = 15$; $15 \times 150 = 2{,}250$; $2{,}250 \div 100 = 22.5$ = cubic centimeters of tincture in the total amount. Formula III gives $100 \div 100 = 1$; $1 \times 150 = 150$ = cubic centimeters of the infusion in the total amount.

ADMINISTRATION OF AVERAGE CALCULATED TOTAL AMOUNT

1. When the patient has received no digitalis within the preceding ten days.

A. *In urgent cases.*—From one third to one half of the total calculated amount is administered at the first dose. After an interval of six hours, from one fifth to one fourth of the total is administered. After a second six hours, from one eighth to one sixth of the total is administered. Thereafter, if more digitalis is needed, about one tenth of the total may be repeated every six hours until maximal digitalization is secured. In the case of the example given above with the total amount being 22.5 c.c. of tincture, the first dose would be from 7 to 11 c.c.; the second from 4 to 5 c.c.; the third from 2.5 to 3.5 c.c., and thereafter about 2 c.c. every six hours if required.

B. *Rapid, for nonurgent cases.*—About one fourth of the calculated total is to be given at each of the first two doses, six hours apart. Thereafter about one tenth to one eighth of the total is given every six hours.

2. When the patient has been taking digitalis within the preceding ten days.

Before further digitalis is prescribed, the patient is to be subjected to the most careful examination, including the use of polygraphic or electrocardiographic records if available, to determine whether or not there are any evidences of digitalis action.

A. *When evidences of digitalis action are absent.*—The procedure is the same as outlined above, except that the total amount of digitalis required is to be reduced to 75 per cent. of the total calculated. Thus, in the example used the total would be reduced to 17 c.c. instead of the calculated 22.5 c.c., and the fractions prescribed at each dose would be based on the former figure (17 c.c.). The usual one tenth of the total every six hours may then be prescribed if necessary.

B. *When evidences of partial digitalization are present.*—It is best not to attempt to administer more than one half of the total calculated amount of digitalis, divided equally between the first three doses. In urgent cases in this group, however, one may administer 75 per cent. of the calculated amount, preferably in three equal doses, and then if digitalization is not quite complete, one tenth of the total amount may be prescribed every six hours.

SAFEGUARDS

The appearance of one or more of the following criteria of adequate digitalization, or of minor digitalis intoxication, indicates the cessation of further administration, either permanently or temporarily:

1. Nausea or vomiting (except when due to splanchnic congestion and present before treatment is begun).
2. Fall of heart rate (not pulse rate) to or below 60 a minute.
3. Appearance of frequent premature contractions; of definite heart block; of marked phasic arrhythmia, or of coupled rhythm.

The observance of a six-hour interval between doses allows time for complete absorption of the preceding dose and the development of its full action on the heart so that if the patient is examined just before the administration of each dose, dangerous intoxication can be absolutely prevented. In practice it is perfectly safe to give the first three doses without personally examining the patient before the second and third doses if the one nursing the patient is properly instructed to look for nausea, vomiting, or slowing of the pulse to 60 or less a minute before giving the succeeding dose, and to stop administration if any of these phenomena appear.

When a leaf, tincture, or infusion the cat unit of which is unknown is employed, 100 mg. may be taken as the cat unit; but not more than 75 per cent. of the calculated total amount should be given in the first three doses.

When the patient cannot be weighed, or when marked edema or general anasarca is present, the body weight (exclusive of edema fluid) must be estimated as closely as possible and the total amount of digitalis calculated as usual. Not more than 75 per cent. of the calculated amount should then be given in the first three doses.

COMMENT

The employment of this method of administering digitalis is without danger to the patient if the directions are followed in detail and if the safeguards are carefully observed. By its employment it is usually possible to produce maximal digitalis action in from twelve to eighteen hours, and marked therapeutic effects frequently appear within six hours after the initial dose. By its use it is possible to dispense with the intravenous or intramuscular administration of ouabain, amorphous strophanthin, or other digitalis body in the great majority of cases of heart failure.

412 West End Avenue.

TRANSFUSION OF "ANTIBACTERIAL BLOOD"; REPORT OF CASE *

GEORGE F. LITTLE, A.B., M.D., BROOKLYN

M. K., a girl, aged 11 years, whom I first saw, Nov. 3, 1918, in consultation with Dr. Paul E. Wesenberg, had been suddenly seized with epidemic influenza, October 28. In a few days there was evidence of pneumonia at both bases. November 3 there was well marked consolidation on the right side posteriorly. A similar condition soon showed on the left, and by the 7th the patient gave signs of massive consolidation of both lower lobes. The case seemed hopeless. Oxygen was used freely; the windows were kept wide open. Moderate doses of morphin, with large doses of atropin, were being tried out at one of the army camps, in cases of massive influenzal pneumonia. The patient was given $\frac{1}{24}$ grain of morphin sulphate and $\frac{1}{150}$ grain of atropin sulphate every four hours for a day, and every six hours the second day. Morphin was then discontinued and atropin reduced to $\frac{1}{100}$ grain at four hour intervals, replaced after a day or two by 4 minims of tincture of strophanthus. Three grains of caffein sodiobenzoate were administered midway between the doses of atropin and strophanthus. Three grains of camphor in oil, and 5 minims of a 1:1,000 solution of epinephrin were employed hypodermically, as conditions warranted. Eliminative measures were freely used.

After a few days of treatment, the lung consolidation lessened and the child slowly improved. At the end of two weeks, râles at both bases were the only finding. In the meantime, however, there were other complications: an acute laryngitis; a dry pleurisy of the upper right chest, and a suppurative glossitis. November 12, swellings were noted on the back, right thigh and both ankles. The right ankle was incised on this date by Dr. Wesenberg, and pus was found. A blood culture was ordered, and mixed influenza serobacterin was administered for several consecutive days, without noticeable benefit. Dr. Horace Greeley reported the culture as showing a staphylococcus and a bacillus, the latter not identified. On account of the patient's extreme weakness, he doubted reaction to an autogenous vaccine, and suggested transfusion of blood from a donor whom the vaccine might cause to react.

An incision in the left popliteal space, November 15, revealed a quantity of pus. On the 17th, an abscess in the lumbar region was opened. A first injection of autogenous vaccine was given on this day. Two days later, incisions showing pus were made in the right side of the chest, left arm, left forearm and right hip. A considerable quantity of mucus in the stools gave evidence of an enteritis. November 20. Dr. Max Bender tested the blood of seven family

* Read in part before The Brooklyn Pediatric Society, Dec. 18, 1918.

donors with that of the patient. In only one case was there no agglutination. On the following day Dr. George I. Miller made an attempt at transfusion. The donor had no visible veins at the bend of either elbow, and dissection brought to light veins of infantile size, capable of no flow of blood. Two days later the patient's left ear drum perforated.

Professional donors were tested and one found whose blood was available for the child. Three hundred c.c. were passed from vein to vein, November 23, by Dr. Miller and Dr. Benjamin E. Wolfort. Five-tenths c.c. of the patient's vaccine was then injected in each arm of the donor, with marked reaction.

At this stage of the case, the bronchopneumonia was of low grade, with some râles at the bases, apparently needing only increased resistance for clearance. The septicopyemia, however, was overwhelming, and the prognosis indicated a fatal outcome.

From the transfusion there was a slight general betterment. Both eyes, however, became infected. November 25, 400 c.c. of blood were transferred. The patient became cyanotic at the close of the operation, and in the following twenty-four hours the pulse was of poor quality, with a tendency to cardiac collapse. Possibly a little too much blood was passed. During the following week the temperature continued of septic type; the right ear drum perforated, and abscesses were reopened on the back and left arm.

December 3, 340 c.c. of blood were transfused, the donor having received 1 c.c. of vaccine in each arm four days previously. The child took the donation well, with apparent improvement in the general condition, but the temperature showed diurnal variation from 100 to 103 F. Incision, by Dr. Wesenberg, in the left popliteal space, December 5, brought pus in quantity. Drs. Miller and Wolfort again transfused, December 8, giving to the patient 390 c.c. of "antibacterial blood" from the donor, who had been "primed," as on the last occasion. There was difficulty in locating a receptive vein, the internal saphenous finally being utilized, after delicate dissection. Local anesthesia sufficed, as in previous transfers. Owing to prolonged procedures, apparently, the heart developed a condition requiring most active stimulation, and creating anxiety as to future interference. Cardiac weakness had been more or less a feature in the septic involvement. On the same date, the right ankle required incision.

Following this transfusion, the marked septic temperature curve disappeared, the râles at the bases cleared, and the patient took nourishment well and gained daily in flesh and strength. For months, however, while not in danger as to life, she was entirely disabled by continuance of local infections. Dr. Wesenberg incised at intervals—the right leg above the ankle, the right ankle again, the lower spinal region, the right side, the right ankle still again, and the left hip. January 2, and on several subsequent occasions, roentgenograms of the infected joints were taken by Drs. Eastman and Bayles. At the indication of the plates, Dr. Wesenberg, assisted by Drs. Edwin B. Wilson and Richard M. Mills, operated under general anesthesia, January 4. The right hip joint was opened; the head of the femur, displaced upward, was brought down, and the leg straightened and put in Buck's extension. The opening into the left knee joint permitted removal of dead bone. This leg was straightened and similarly extended.

Rib resection was called for, January 30, through development of an abscess of the lung. This apparently cleared up in a few weeks, but filled again and required reopening, February 28. Further operative measures became necessary, February 19, as roentgenograms revealed considerable destruction of the surgical neck and articular surface of the left femur. This hip had been opened and drained, February 3. The incision was enlarged by being carried transversely toward the rectum. Right hip drainage had ceased and the wound had closed: the presence of pus was apparent in the plates, indicating reincision. Lieut.-Col. Edwin H. Fiske, M. R. C., saw the patient in consultation, March 10. He did not advocate further operative interference. There was no additional development of localized infection. The affected joints were slow in clearing up—the last to heal, the left knee, ceasing to drain in July. Limitation of motion was naturally expected, loss of function of the left hip being especially feared.

The outcome of the case, as shown in the present condition of the patient, is better than expected and reflects credit on the surgery. There is good motion in both hip joints. The right leg is shortened 1¾ inches; this is partly compensated for by a 1-inch shortening of the left leg; a thick shoe sole completes the balance. There is a right talipes equinus, probably capable of correction by tenotomy. A slight interference with the left knee flexion may be overcome.

COMMENT

The possible effect of several more transfusions on the local processes would have been of interest. It was not feasible, however, to go further.

"Antibacterial blood" seems worthy of trial in any severe general infection, other measures having failed of control.

CONCLUSIONS

Those in professional attendance certainly reached the conclusion that life was saved by the transfusions.

Possibly blood, without attempted action on it, might have accomplished the result. It is rational to conclude, however, that the patient's vaccine, injected into the donor, produced antibodies in his blood which were of specific value to the patient in overcoming her septicopyemia.

469 Clinton Avenue.

HITHERTO UNDESCRIBED SIGN IN DIAGNOSIS OF LETHARGIC ENCEPHALITIS

THOMAS F. REILLY, M.D., NEW YORK

While there is no great difficulty in arriving at a diagnosis in the cases of encephalitis presenting a history of double vision, ptosis and other cranial nerve phenomena, a not inconsiderable number of patients are encountered in hospital practice who are brought in unconscious or delirious, and from whom no such history is obtainable. In such instances the patient presents a picture closely simulating that of one in the third week of typhoid fever. There are no focal symptoms pointing to a local central lesion. The leukopenia, so frequently present, is also strongly suggestive of typhoid fever.

In children the picture is almost identical with tuberculous meningitis. I have noticed in the majority of cases of encephalitis a sign that is very startling when recognized. It consists of a rhythmic convulsive twitching of the muscles of the abdomen in the neighborhood of the eighth and ninth ribs. It often simulates the muscular movement of hiccup, except that it is onesided. In two cases it involved the trapezius. Even in the conscious patient, it is beyond voluntary control. It has been present in the mild as well as in the severe cases, although in two patients it was not elicited when I observed them.

The term "lethargic" is unfortunate, as many of the patients having encephalitis are never lethargic; on the contrary, they are frequently delirious and often have choreiform movements of the limbs.

In some cases there are almost no cerebral symptoms, not even the ordinary placidity; in others a curious fear and apprehension may be evident, and again the patient presents only the painful sensations of an ordinary neuritis confined to certain peripheral nerve tracts, the central origin of which is evident by reason of its rapid transference to other regions of the border.

Often in these doubtful cases the convulsive twitching mentioned above is the only symptom that may serve to suggest that the patient is suffering from encephalitis.

It may be too early to regard this symptom as of absolute diagnostic value; but it has been present so frequently in the cases that I have observed that I am certain that it is at least a strongly suggestive sign.

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SATURDAY, MARCH 13, 1920

INFLUENZA OF 1918 AND 1920

The epidemic of influenza in 1920 in this country reached its maximum, so far as the large cities of the country are concerned, in the week ending February 14. According to the Bureau of Census Reports, the number of combined deaths from influenza and pneumonia in that week was 7,059, while in the following week the number of deaths from these causes in the same cities had dropped to 5,088. These figures compare with the February weekly average in 1917 of 1,489. Although cases of typical influenza seem still to be appearing in various parts of the country, the peak of the epidemic has certainly been passed. As previously pointed out, the total mortality throughout the country has been much lower in 1920 than it was in 1918. Certain localities, however, have suffered quite severely, notably Kansas City, Minneapolis, Detroit, Milwaukee and St. Louis, all of which had a higher death rate from influenza and pneumonia than in 1918. Columbus, Ohio, and Indianapolis also suffered severely, although the actual excess rates did not reach quite as high a point as in 1918. Unofficial reports from small towns and villages show substantially the same conditions as observed in the larger cities. Most communities were less seriously affected than in 1918, but certain localities apparently without regard to geographic distribution were very seriously stricken.

The epidemic of respiratory disease of January, 1920, differed from the epidemic of 1918 in that the total number of persons affected was less, the proportion of acute rapidly fatal cases was smaller, and the period of the epidemic was somewhat shorter. Symmers,[1] in a study of the pathologic findings in a series of fatal cases of pulmonary disease of the recent recurrent epidemic in New York, noted certain clinical as well as pathologic differences between the types of the disease of the two epidemics:

> The recurrent disease, while it incapacitated thousands, pursued a milder course, complicating pneumonias were relatively few, and the death rate, of course, did not approach the appalling figures of the previous eruption. On the other hand, the recurrent disease was characterized by a greater variety of pulmonary lesions—among other things, by concomitant semipurulent pleural exudates, by multiple pleural and subpleural abscesses, by frequent and extensive purulent invasion of the interlobar and interlobular septums of the lungs, by the formation of solitary, oftener multiple, discrete or confluent abscesses of the parenchyma, and by an extraordinary range of pneumonic lesions.

This experience in New York was no doubt duplicated in many other localities, usually those in which the epidemic of 1918 was of like severity. In other communities the epidemic of 1920 presented a proportion of severe rapidly fatal cases approaching that of 1918. As was pointed out in these columns,[2] the case fatality in several large cities equaled that of the epidemic of 1918.

Apparently the differences between the original and the recurrent epidemic depended to a considerable extent on the relative susceptibility and exposure of the population of a community at a given time. The first wave of influenza in 1918 affected a large proportion of highly susceptible persons, and in these the course was particularly severe and fatal. The early fatal termination precluded the development of purulent complications, which require a somewhat longer time for development. The records in certain army camps showed that of those dying late in the epidemic, at a time when the proportion of purulent complications was larger, many had become ill early in the epidemic, but had survived their fellows only to succumb later to more slowly fatal complications. The effect of individual resistance on the type of pulmonary lesions has been noted by MacCallum[3] in his studies on pneumonia following measles and on the pneumonias following influenza. Some communities suffered relatively little in 1918, and in some at least of these, in which there presumably remained a considerable number of highly susceptible persons, the influenza of 1920 produced many severe fulminant cases of the type seen early in the epidemic of 1918.

So far as now available, reports from different communities on the bacteriology of the 1920 epidemic show the same diversity of results as was the case in the 1918 epidemic. Symmers found *Streptococcus hemolyticus* in most of the lesions; *Staphylococcus aureus* was found occasionally in intrapulmonary abscesses. "In the pneumonic exudates themselves, the prevailing micro-organism was a streptococcus. In occasional instances, influenza bacilli and pneumococci were isolated in combination with one another or with streptococci." These findings resemble those of the later portion of the epidemic of 1918 in some army camps. On the other hand, Small and Stangl[4] report from Chicago a higher proportion of Pfeiffer bacilli, in some of their groups from 75 to 100 per cent. In a group made up of cases of pneumonia chosen at

1. Symmers, Douglas; Dinnerstein, Morris, and Frost, A. D.: Differences in Pathology of Pandemic and Recurrent Forms of So-Called Influenza, J. A. M. A. **74**: 646 (March 6) 1920.

2. The 1920 Influenza, Current Comment, J. A. M. A. **74**: 607 (Feb. 28) 1920.

3. MacCallum, W. G.: Pathology of the Pneumonia Following Influenza, J. A. M. A. **72**: 720 (March 8) 1919.

4. Small, J. C., and Stangl, Fred: The Bacteriology of Epidemic Influenza, abstr. J. A. M. A. **74**: 622 (Feb. 28) 1820.

intervals throughout the 1920 epidemic, pneumococci occurred in 84 per cent., hemolytic streptococci in 18 per cent., and Pfeiffer bacilli in 75 per cent.

In 1918, a clear bacteriologic picture of the epidemic as a whole was difficult on account of the diverse findings in different localities. However, the clinical features of the primary disease, influenza, were the same wherever it occurred, varying only in degree of severity, and there is much evidence in favor of the view that influenza has a demonstrable pathology of its own, as described by LeCount,[5] Goodpasture [6] and others, the outstanding features of which are capillary necrosis and hemorrhage, with resultant edema, and that the succeeding pneumonias result from infection by such organisms, whether streptococcus, pneumococcus, Pfeiffer bacillus, or others, as happen to be resident in the respiratory tract of the patient, and are able to grow on the soil prepared by the preceding influenzal lesions.

It seems probable that when complete reports of the 1920 epidemic are available we shall find that, on the whole, the severity is much less than in the epidemic of 1918, but that here and there groups of cases in 1920 were fully as severe and presented the same fulminant characteristics as in 1918. It should also be borne in mind that in larger communities, especially, there will be included with the cases of the epidemic influenza that group of cases of respiratory disease which would normally occur during the winter season, including a varying proportion of lobar pneumonias, streptococcal pneumonias similar to those of 1917-1918, and a host of cases of colds and tonsillitis which in nonepidemic periods would be passed with less remark.

IS FAT INDISPENSABLE FOR WELL BEING?

In a recent issue of THE JOURNAL, Hindhede [7] of Copenhagen discussed the effects of the food restrictions that were imposed on the Danish people as a result of the blockade existing during the latter years of the war. Despite the fact that Denmark was a noncombatant neutral nation, the interference with the international transfer of food, brought about by the food administrations of the allied governments and the shipping situation, prevented the importation of the usual quota of bread cereals and of the large amounts of cattle feeds that had been used before the war to maintain the stock of domestic animals used directly as food or kept to supply dairy products. Although the situation was somewhat similar in Germany, it would appear that the outcome of the shortage was far more serious in the latter country than in Denmark. The greater success attained in Denmark in maintaining the populace in health under unexpected changes in food supply is attributed to what Hindhede commends as the wiser policy of a government "converted to the newer ideas on nutrition."

We shall not review at this time the various methods suggested by the nutrition experts of the affected countries for meeting the emergencies that arose. They have become the subject of somewhat acrimonious debate between the adherents of different schools of physiologic thought. Essentially, the plan of the Danes consisted in reserving the available cereals, notably rye, wheat and barley, as well as a large proportion of the potatoes grown in Denmark, for the people themselves instead of feeding them to the domestic animals, particularly cattle and hogs. As a consequence of this decision to use the vegetable products directly instead of first converting them into animal tissue for human consumption, so many of the hogs were killed that the number of swine in Denmark was soon reduced to one fifth of the prewar stock. Consequently the supply of meat was greatly reduced, and likewise that of fats, which are derived so largely from animal products.

This scheme involved the placing of the Danish nation on a preponderatingly vegetarian basis. Almost inevitably this necessitated a lowering of the protein content of the dietary. In addition to this, furthermore, there resulted a large deficit in the fat content of the ration. To prevent an unduly low protein intake, the cereals were milled only slightly, so as to retain a maximum of the outer nitrogenous layers, which are commonly removed in the preparation of barley, wheat and rye for human consumption. Wheat bran was actually added to flour to increase the protein content of the bread made from it. "Bran," Hindhede writes, "was considered to be a very valuable food, one which was well digested by man." [8]

In this respect the reports differ from the experience of American investigators. They have repeatedly found that the amount of protein digested varies in flours according to the character of the particles of the bran. In a recent series of experiments on man at Washington,[9] the bran protein itself was digested to the extent of 44 per cent. in the case of fine bran only, whereas nearly three quarters of the protein of coarser wheat bran remained unutilized. Although it is safe to say, in harmony with recent observations of Langworthy and Deuel,[10] that the finer a bran-containing flour is ground, the more completely it is utilized by the human body, yet American physiologists would probably hesitate to urge a very liberal inclusion of bran in the dietary as a source of protein. Indeed, bran has acquired a quite different significance of late among physicians.[11]

5. LeCount, E. R.: Disseminated Necrosis of the Pulmonary Capillaries in Influenzal Pneumonia, J. A. M. A. **72**: 1519 (May 24) 1919.
6. Goodpasture, E. W.: Am. J. M. Sc. **158**: 863 (Dec.) 1919.
7. Hindhede, M.: The Effect of Food Restriction During War on Mortality in Copenhagen, J. A. M. A. **74**: 381 (Feb. 7) 1920.
8. Hindhede, M.: Skand. Arch. f. Physiol. **33**: 59, 1915.
9. Bull. 751, U. S. Dept. Agric., 1919. Bread and Bran, editorial J. A. M. A. **73**: 36 (July 5) 1919.
10. Langworthy, C. F., and Deuel, H. J.: Proc. Nat. Acad. Sc. **5**: 514, 1919.
11. Use and Abuse of Cathartics: Bran, Therapeutics, J. A. M. A. **73**: 1768 (Dec. 6) 1919.

Another outcome of the Danish regimen will seem far more significant to most readers. "While fat was regarded as a very valuable addition to the dietary, it was not considered as being necessary."[7] This thesis, which has been defended by Hindhede for several years,[12] is likely to meet opposition from many, particularly those who have attributed some of the types of malnutrition consequent on "war diets" to lack of fat in the ration. Nevertheless, Hindhede[12] has furnished the records of a number of persons who have actually been maintained for many months in good health and vigor on diets of bread, potatoes, vegetables and fruits without any added fat whatever. It might seem as if we were face to face with an inexplicable contradiction here, especially since it is now believed that a fat-soluble vitamin plays an important part in nutrition, at least in the periods when growth or tissue production are concerned. Recent developments in the study of the physiologic value of different foods may give a clue to a possible explanation. So long as the fat-soluble vitamin (fat-soluble A) was supposed to be present only in natural fats and oils, it seemed inevitable that some modicum of suitable fat should be furnished in the diet. However, the studies of McCollum[13] and particularly the more recent investigations of Osborne and Mendel,[14] and of Steenbock[15] and his co-workers, have clearly demonstrated that the vitamin under discussion is present in considerable abundance in many vegetables. Herein may lie the answer to the possibility of successful nutrition on diets poor in fats. The Danish ration is said to have abounded in vegetables. Doubtless in other places during the war the lack of fat-soluble vitamin was averted during stringency in the fat supply when milk, butter, eggs, and other animal sources of this food factor were lacking, by the inclusion of vegetables, notably cabbage and similar products, in the ration. Whether fat as such, apart from the other substances which it may include in solution, is an indispensable in nutrition is still an unanswered question. Hindhede's investigations have brought it into new prominence.

12. Hindhede, M.: Fettminimum, Skand. Arch. f. Physiol. **39**: 78, 1919.
13. McCollum, E. V.: The Newer Knowledge of Nutrition, New York, 1919.
14. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **37**: 187 (Jan.) 1919.
15. Steenbock, H., and Gross, E. G.: J. Biol. Chem. **40**: 501 (Dec.) 1919; **41**: 149 (Feb.) 1920.

QUININ: 1820-1920

In the Paris *Journal de Pharmacie* of May, 1820—a hundred years ago—Joseph Pelletier, professor at the Ecole de pharmacie, who two years earlier had discovered strychnin, stated in a letter to one of the editors:

> I take occasion to announce in your journal, in the name of MM. Labillardiere, Caventou and myself, the discovery of a base ["une substance alcaline"] in gray cinchona. This is perhaps the substance which Gomès first found and named cinchonin, or the pure resin obtained by Laubert; but these chemists did not recognize the true character of the substance for which the basic nature remained to be discovered and most of the properties to be investigated. The yellow cinchona likewise contains a substance capable of combining with acids and forming crystalline compounds; but this substance differs from cinchonin (the base of gray cinchona) in several features.

Soon after the successful chemical isolation of the two distinct alkaloids, quinin and cinchonin, in the different kinds of cinchona bark which had up to the beginning of the nineteenth century been used in its crude powdered state, although many efforts were made to discover the medicinal principles therein, Pelletier established a factory for the production of quinin. From there the demand of the world for the isolated drug was thus supplied until, in 1826, J. D. Riedel began the preparation of quinin in Berlin. This venture was not very successful, owing to the failure of the producer to recognize the variability of alkaloid in the cinchona bark. Later Zimmer of Frankfort engaged more successfully in competition with the French trade.

The cinchona alkaloids, of which twenty or more have been described, have been termed "a South American gift to humanity."[1] It is related that in 1640 the Count of Chinchon, who was at the time viceroy of Peru, returned to Spain with his wife, who took with her a quantity of the medicinal cinchona bark and thus was the first person to introduce it as a specific into Europe. Until 1867, English manufacturers were entirely dependent on South American sources for their supply. Uncultivated trees in Bolivia, Peru and Ecuador furnished the bark. In that year the first importations of cultivated bark arrived from India

The year 1920 marks the centenary of the first isolation of the most valuable alkaloid of the cinchona bark. Its therapeutic virtues need not be extolled to medical readers. In 1826, Pelletier and Levaillant together produced about 177 kilograms (390 pounds) of salts of quinin.[2] During the year ending in June, 1914, the United States alone imported cinchona bark to the amount of 3,648,868 ounces, valued at $464,412, and quinin sulphate and other alkaloids or salts of cinchona bark to the amount of 2,879,466 ounces, valued at $624,125.[1] If medicine were to think of quinin in relation to malaria alone, not to mention the value of the drug in the management of other diseases, she would well be justified in pausing to give worthy recognition to the French pioneers in pharmaceutic chemistry who first gave her this useful therapeutic product in isolated form a hundred years ago.

1. Bulletin of the Pan American Union, Washington, D. C. **42**: 61 (Jan.-June) 1916.
2. The statistics are from Schelenz, H.: Geschichte der Pramazie, Berlin, 1904, p. 623.

Hazardous Occupations.—The physical reexamination of workers in hazardous occupations will result in the accumulation of scientific facts of known value with which to replace the oftentimes erroneous opinions now held regarding the dangers and hazards of certain occupations.—F. L. Rector: *Public Health Rep.*, Jan. 9, 1920.

Current Comment

PUBLIC HEALTH ORGANIZATION AND THE MEDICAL PROFESSION

It will probably still be a long time before the desirability of protecting the public health will make the same appeal to the legislators controlling public funds as does the necessity of protecting property. Nevertheless the tendencies of the times are making it almost impossible for even the most unprogressive community to fail to take notice of the growing demands for greater and better service in the interest of public health. The health officer of a decade ago, and the board of health to which he was responsible, are undeniably experiencing an evolution into something more active, more efficient and more important than they were in the past. In the coming years our communities will no longer be satisfied with merely the control of epidemics and the proper disposal of garbage and other wastes as the work of their health experts. Professor Winslow[1] of Yale, in an illuminating vice presidential address before the American Association for the Advancement of Science at St. Louis, forecast the future of the movement for greater accomplishment in the domain of public health by thus defining its scope:

> Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health.

This represents no mean program. It calls for a corps of experts rather than a single officer, who has in too many instances in the past been as untrained as he has been underpaid. With the physician, the earliest health officer to be recognized in the development of the public health field, the bacteriologist was the first to become affiliated for greater usefulness. Subsequently came the epidemiologist, trained "to trace out the subtle pathways of infection by which they spread from one person to another through the complex web of community life." The public health nurse, who has already more than justified her special province, is likewise here to stay; and Winslow will not permit us to be content until the sanitary engineer, the statistician and the social worker are included in the coterie of highly qualified persons who must cooperate to make of the movement for public health, as defined, something as influential and wholesome as are the conservation and development of mental efficiency in the educational organizations of the country. He would be blind, indeed, to the forces of progress who would deny that these things may come about. The public health campaign is going forward rapidly. It will be interesting to observe how its outcome affects the medical profession in the coming years. We must not be blind to the fact that the ordinary physician alone cannot and will not be expected to carry forward the new projects in their entirety. The public health physician must already be specially trained for his duties if he is to rise above the level of mediocrity in the work. Sanitary experts and others without special training in clinical medicine must find a place in the new scheme of organization. Who can foretell how the plans and performances of the "sanitary statesmen" of the coming generation will modify the practice of medicine?

1. Winslow, C.-E. A.: The Untilled Fields of Public Health, Science **51**:23 (Jan. 9) 1920.

GAS CYSTS OF THE INTESTINE

The difficulties of abdominal diagnosis are already so great that it seems almost criminal to call attention to any new conditions that must be taken into account in reaching a conclusion as to the nature of a given case of disease in the abdomen. Since 1876, when Bang of Copenhagen described the first case in the human being, the literature has contained an increasing number of references to a peculiar abdominal condition characterized by the formation of multiple gas-containing cysts in connection with the peritoneum and the walls of the stomach and the intestine. Tuffier and Letulle[1] have recently described two new cases and discussed both the clinical manifestations and the pathologic anatomy of this strange malady. There is nothing characteristic about the symptomatology of the disease. Many of the patients have no symptoms whatever, and the presence or absence of symptoms depends on the location of the process and its mechanical effect on the stomach and intestine. Those patients who have symptoms complain of digestive disturbances, such as diarrhea and vomiting, and finally present the picture either of intestinal obstruction or of an abdominal neoplasm. Such cases usually fall into the hands of the surgeon who, on opening the abdomen, finds large numbers of gas-containing cysts connected with the peritoneum or digestive canal which may be of sufficient size to cause intestinal obstruction or to produce a palpable tumor. A few cases in which a second operation has been necessary have demonstrated the strange fact that the mere opening of the peritoneal cavity and handling of its contents results in the disappearance of the cysts. This at least is one explanation of such observations, although another possibility is that the disease naturally tends to recovery after a certain length of time. The studies of Letulle[2] on the pathology of the condition show that the primary lesion is an inflammation which involves the peritoneal lymphatics, causing obstruction in some places and dilatation in others. The mysterious aspect of the process is the origin of the gas with which the cysts are filled. This gas consists of various combinations of carbon, oxygen and hydrogen. It is quite odorless, and obviously is not of intestinal origin. Nobody has yet been able to bring forward any reasonable explanation of its presence, although no very

1. Tuffier and Letulle: Sur une maladie caractérisée par des kystes gazeux de l'abdomen, Bull. de l'Acad. de méd. **82**:5 (July 1) 1919; abstr. J. A. M. A. **73**:795 (Sept. 6) 1919.

2. Letulle, Maurice: Les kysts gazeux de l'intestin et du péritoine, Presse méd. **27**:781 (Dec. 20) 1919; abstr. J. A. M. A. **74**:494 (Feb. 14) 1920.

careful bacteriologic studies seem to have been made. Tuffier and Letulle do not seem to consider the condition analogous to the gas cysts of rapid formation which are sometimes found in the intestinal wall in connection with the gas bacillus. It would seem, however, that the bacteriologic side of the disease should be carefully investigated, as bacterial action seems to be the most likely explanation of the formation of the gas.

THE REACTION OF THE SWEAT

Although it has been taught that the skin is an organ of excretion in cooperation with the lungs and kidneys, there seems to be little evidence to substantiate the importance of the cutaneous tissue in this function. There is no uncertainty, of course, regarding the liberal output of water that may occur by way of the skin through the agency of the sweat-glands; but this loss of water is mainly determined by the need for regulating the temperature of the body. Variations in external temperature or the work done and heat produced by the body, rather than the quantity of the fluid intake, determine the extent to which perspiration takes place. There is a small quantity of nitrogenous waste present in the sweat. Its quantity is, however, too small to play any significant part in the excretory functions. The same conclusion applies to the small content of saline constituents which have been discovered in the secretion from the skin. In speaking of the popular overestimation of the share of the skin in the removal of waste, Stiles[1] has naively remarked that 'the belief that "the pores must be kept open" lest poison gather in the system has been so fruitful of wholesome practices that one is reluctant to question it. Nevertheless, it is perhaps too soon to dismiss entirely the possibility that the skin may play some part, even if only a minor one, in the regulatory functions other than that of heat regulation. Our knowledge of the composition of the sweat is still all too meager, particularly so far as it may be varied by changes in the condition or activities of the organism. For example, the statements as to the reaction of sweat have been conflicting. Obviously if the skin, like the kidneys, is to be considered as engaged in removing the undesirable waste from the body, one would expect an acid excretion since a preponderant number of the end-products of metabolism are acid in character. Recent experiments on man by Talbert[2] leave no doubt as to the acid reaction of sweat. It matters not whether the secretion is caused by work or by heat; in health it is acid, and the degree of acidity is greater than has been assumed. This reaction, which is represented by a hydrogen-ion concentration of $p_H =$ from 5 to 6, is not due to products from the sebaceous glands which have, in the past, sometimes been charged with causing the result; but why, as Talbert found, the sweat caused by external heat is always more acid than that provoked by muscular effort remains a physiologic mystery.

1. Stiles, P. G.: Nutritional Physiology, Philadelphia, W. B. Saunders Company, 1912, p. 168.
2. Talbert, G. A.: The Effect of Work and Heat on the Hydrogen Ion Concentration of the Sweat, Am. J. Physiol. **50**: 433 (Dec. 1) 1919.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Personal.—Dr. George E. Goodrich, Phoenix, has been appointed state superintendent of health.

Plans for Sanatorium.—A number of physicians of Casa Grande are planning to carry out a tuberculosis sanatorium project. The site for the enterprise is half a section of land northeast of Casa Grande on a mesa. On this site it is proposed to build 100 houses each to cost about $3,000 furnished and to be rented to families and individuals at $50 a month. This will include the service of a resident physician. There will also be constructed a hospital, an electric light plant, an office building and an experimental laboratory.

CALIFORNIA

Chiropractic Measure on Ballot.—With 55,094 signatures (47,744 of which are of residents of Los Angeles) the chiropractic initiative measure has qualified for a place on the ballot at the next general election in California. The measure contemplates creating a chiropractic board and providing for the licensing of all chiropractors now in practice.

Chiropractors Arraigned.—Linden L. D. McCash, chiropractor of Berkeley, has been arrested on a charge of practicing without a state medical certificate.——It is reported that E. Burnard Hubley, a chiropractor of Los Angeles, was found guilty of practicing without a state license, February 5. He was arrested about a year ago on a similar charge and found not guilty.

CONNECTICUT

Tuberculosis Clinic.—The board of health of New Haven, February 24, voted to establish a tuberculosis clinic at Grace Hospital, New Haven, as soon as arrangements could be made with the hospital authorities, and the board of finance sanctioned the expenditure, which is estimated at about $3,000.

New Officers.—At the annual meeting of the New Britain Medical Society, Dr. Walter J. Robbins was elected president; Dr. Frederick J. Mann, vice president, and Dr. George W. Dunn, secretary-treasurer.——New Haven County Medical Society at its annual meeting held, January 21, was given a bust of Dr. Jonathan Knight by Dr. Louis M. Gompertz and Donald W. Carmichael. The following officers were elected: president, Dr. Robert E. Peck; vice president, Dr. Raynham Townshend; recording secretary, Dr. Frank L. Phillips; corresponding secretary, Dr. Samuel J. Goldberg, and treasurer, Dr. Frank H. Wheeler.

Personal.—Dr. George Blumer, New Haven, for thirteen years in service as professor of medicine at Yale University Medical School, has requested to be relieved from duty at the close of the academic year. His resignation has been accepted. Dr. Blumer was chosen dean of the school in 1910, and during his deanship the annual budget has increased from $43,000 to $225,000 and the endowment from $225,000 to $2,700,000. Dr. Blumer desires to be relieved of the burden of administrative duties in order to devote time to his consultation practice.——Dr. Clarence E. Skinner, New Haven, has been made medical director of the Postal Life Insurance Company, New York City.——Dr. Edward H. Kirshbaum, Waterbury, has been appointed medical examiner (coroner) for the town of Walcott, succeeding Dr. Edward W. Goodenough, resigned.

GEORGIA

Sanatorium Taken Over by Government.—The formal transfer of the Cheston King Sanatorium, Peachtree Road, Atlanta, has taken place and the hospital is now known as the U. S. P. H. S. Hospital No. 48.——Lenwood Hotel, Augusta, has been leased to the United States government for use by the Public Health Service in the care of disabled soldiers.

ILLINOIS

Physicians Will Not Prescribe Liquor.—The members of Will County Medical Society at the meeting, March 3, agreed not to prescribe liquor in their practice.

New Government Hospitals.—The Livingston Hotel and the laboratories of the Leslie E. Keeley Company, Dwight, have been leased to the U. S. Public Health Service and will be converted into a hospital with accommodation for about 200 patients.

Venereal Disease Statistics.—Among the 11,915 cases of venereal disease reported to the Illinois State Department of Public Health during the year ended June 30, 1919, 656, or about 5.5 per cent. of those affected, were employed in the handling of foodstuffs. Of the total number, 7,756 were males and 4,159 females.

Personal.—Dr. Edwin B. Godfrey, Springfield, sailed from New York, February 26, for the Balkan States for service as major in the Medical Corps of the American Red Cross. ——Dr. Letitia A. Westgate, Aurora, formerly city chemist and bacteriologist of Aurora, is reported to have sued the city for $30,000 damages.

Chiropractor Fined.—Joseph Langley, La Harpe, is reported to have been arrested recently for practicing medicine without a license and was fined $100 and costs. Langley's advertisement to sell "a six months' practice, yielding over $200 monthly," was called to the attention of the Department of Registration and Education and led to his arrest. Langley, it is said, had paid $100 for membership in the Illinois Association of Chiropractors and had been assured that such membership would protect him in his practice. After his office had been closed and his signs had been taken down by order of the court, Langley said he was going back to Burlington, Iowa, "where it was not necessary to have a license to practice chiropractics."

Chicago

Chicago Woman Appointed Chief Nurse.—Miss Helen Scott Hay, formerly superintendent of the Illinois Training School for Nurses and chief nurse of the Red Cross commission to the Balkans, has been appointed chief nurse to the American Red Cross Commission in Europe.

Haggard in Chicago.—Dr. William D. Haggard, Nashville, Tenn., presented a paper before the Chicago Medical Society at its meeting, March 10, on "The Consideration of the Toxic Non-Exophthalmic Goiter," illustrated by lantern slides. An informal dinner in honor of Dr. Haggard was given at the University Club, preceding the meeting of the society.

Pathologists Meet.—At the meeting of the Chicago Pathological Society and section on pathology of the Chicago Medical Society held, March 8, the subjects of discussion were: ectopic pregnancy, hydronephrosis and lymphatic tumors. A new anaerobic technic was demonstrated and an improved method of cultivating gonococci under partial oxygen-tension was described.

Personal.—Dr. Saul A. Koppnagle, national organizer and secretary of the Chicago chapter of the Communists Party, surrendered, March 3, and gave bonds of $10,000 in answer to the charge of conspiracy to overthrow the government.——Dr. John H. Curtis has been selected as superintendent of the New Britain (Conn.) Department of Health, succeeding Dr. William M. Stockwell, resigned.

Prescription Doctor Arrested.—R. M. Carroll, charged with having issued promiscuously prescriptions for whisky, was arraigned, March 4, and held in bonds of $2,000. It is claimed that this man issued at least 200 prescriptions a day and claimed that he charged "anywhere from $1 to $7 for the prescription, depending on the condition of the patient's cough."——Dr. Joseph A. Khamis, held on the charge of violation of the liquor law, protested that he had not written prescriptions without thoroughly examining the patient, and said that he had been robbed of a number of signed prescription blanks by men posing as revenue officers.

KENTUCKY

All-Time Public Health Service.—Daviess, Christian, Scott, Boyd and Harlan counties have taken advantage of the offer of the state board of health to appropriate $5,000 annually to establish an all-time public health service provided a like amount is subscribed by the county.

Board of Health Appointments.—The following have been appointed members of the state board of health: Dr. Isaac A. Shirley, Winchester, 1918-1923; Dr. William W. Richmond, Clinton, 1918-1923; Dr. Joseph E. Wells, Cynthiana, 1919-1921; Dr. John G. South, Frankfort, 1920-1925, and Dr. George S. Coon, Louisville, 1920-1925.

MARYLAND

Negro Staff for Colored Schools Appointed.—Dr. C. Hampson Jones, Baltimore, commissioner of health, has announced the selection of a staff of negro physicians and nurses for medical inspection of negro schools.

Coroners Appointed.—The following coroners for Baltimore city have been appointed by Governor Ritchie: Drs. James M. Fenton, Henry L. Sinskey, John J. Morrissey, Jr., Harry K. Gorsuch, William T. Riley, Otto M. Reinhardt, James K. Insley, Jay T. Hennessy and George C. Blades.

New Hospital Opened.—The Morrow Hospital, Baltimore, opened February 18. The institution is for the advancement of social hygiene and the treatment of venereal disease, and is under the charge of the United States Public Health Service, the State Board of Health, and the Health Department of Baltimore.

Johns Hopkins to Get Appropriation.—The general education board of the Rockefeller Foundation has announced from its New York office that an appropriation of $400,000 is to be made to Johns Hopkins University. The money will be devoted to the women's clinic, which will be built in the spring. This amount was promised by the board last year if the university could raise $600,000, which has been donated. Plans for the erection of the building are in process of preparation.

Increased Hospital Accommodation under Consideration.—Because of the urgent need for additional hospital facilities in Baltimore, the advisability of taking over some twenty-three semifireproof buildings on the south side of the Fort McHenry reservation, now a part of U. S. Army General Hospital No. 2, which could be altered at comparatively small expense, perhaps $100,000, and be made to fulfil the city's needs for some years to come, has been taken under consideration by the commission appointed by the mayor to study hospital conditions. It is thought that these buildings can be obtained from the government for a nominal sum and within a very short time.

Fort McHenry Hospital to Remain.—Because of the many rumors concerning the abandonment by the Army Medical Service of U. S. Army General Hospital No. 2, Fort McHenry, Col. Henry Page, the commanding officer, has recently made the announcement that there is hardly a possibility of the closing of the hospital, at least until Congress provides the soldiers at Camp Holabird with a post hospital. Discharges at the rate of about 600 a month for the last few months have reduced the number now under care in the hospital to about 1,200. Hardly more than half of these are from overseas; the remainder are patients from Camp Holabird, from the Fort McHenry detachment, and casuals from various outfits.

Personal.—Plans are being made by physicians and surgeons of Baltimore for the celebration of the seventieth birthday of Dr. William H. Welch, one of the notable group of men who have made the Johns Hopkins Medical School known throughout the world. The writings of Dr. Welch will be collected and published in three volumes, the edition being limited to the subscribers.——Dr. Lewis J. Rosenthal, Baltimore, has been appointed inspector of throats for the Baltimore City Health Department to succeed Dr. J. B. Culberson.——Dr. Benjamin M. Jaffe has been appointed health warden for the fifth ward of Baltimore.——Col. Clarence J. Manly, Medical Corps, has been ordered to U. S. Army General Hospital No. 2, Fort McHenry, to command the post in place of Col. Henry Page, who has been directed to take up his duties as commandant of U. S. Army General Hospital No. 21, Denver.——Dr. Clarence R. Dufour has been reappointed chairman of the public health committee of the Baltimore chamber of commerce.

NEBRASKA

Roentgenologists to Meet.—The Omaha Roentgen-Ray Society will hold a meeting in Omaha, March 20.

Personal.—Dr. Allan B. Anderson, Pawnee City, has retired from active practice.——The office of Dr. Frank Tornholm, Wahoo, was destroyed by fire, January 4.

NEW JERSEY

Personal.—Capt. Oscar G. Frundt, M. C., U. S. Army, Jersey City, has been awarded the Distinguished Service Cross for extraordinary heroism in action while commanding a

hospital train in Eastern Siberia, in June, 1919. The award was made on account of Captain Frundt's care and treatment of the wounded and handling of the hospital train while under fire.

Illegal Practitioners Fined.—During December, 1919, six illegal practitioners, including one physician and two osteopaths, are reported to have been arrested and fined $200 each for practicing medicine in New Jersey without a license. They are Vincenzo D'Amico, Elizabeth; Gustave H. Heckman, osteopath, Mt. Holly; Morris Katz, Newark; Gerald Richardson, osteopath, Jersey City; A. Sassaman, New Brunswick, and Chester I. Ulmer, M.D., Gibbstown.

NEW YORK

Women to Meet.—The fourteenth annual meeting of the Women's Medical Society of New York State will be held at Hotel McAlpin, New York City, March 22, under the presidency of Dr. Elizabeth B. Thelberg, Poughkeepsie. Dr. Winifred Cullis of London, England, will be one of the speakers.

Bill to Help Brooklyn Hospital.—Governor Smith has signed the bill appropriating $500,000 for the Creedmoor division of the Brooklyn State Hospital. This is the same item vetoed by the governor last year. He states that the plans of the hospital development commission are matured so that it is safe now to proceed with the Creedmoor construction.

Prize Offered for Poster.—The bureau of venereal disease of the New York State Department of Health offers a prize of $100 to the person who best interprets the expression "Healthy Parents Head Happy Families," in a colored drawing that can be reproduced as a poster in public health work. Drawings must not be smaller than 12 by 18 inches. The winner will be chosen from among those whose drawings are received at the New York State Department of Health, Albany, before May 1, 1920.

Commission Recommended to Study Health Insurance.—The National Civic Federation, which has made a study of social insurance, has recommended to the state legislature the appointment of a state commission to study the relation between sickness and society. The cause and extent of sickness, prevention, treatment, and replacement of the wage loss are suggested as proper subjects for investigation. The federation's committee is opposed to compulsory health insurance in the forms in which it has been presented.

Senate Committee Discusses Nurses' Titles.—The Mullen bill which seeks legal classification of nurses was advanced to a hearing recently at which considerable opposition to the bill was voiced by physicians. Howard Townsend, representing the Hospital Conference of New York City, with a membership of about fifty hospitals, spoke in opposition to the measure. He suggested the creation of a council of advice to consist of three nurses and the same number of physicians and hospital representatives, which should be empowered to advise the state board of regents in matters affecting hospitals and the education of nurses, as a means of securing proper classification. The bill it is claimed would prevent the free use of trained attendants in the care of the sick, and this it is pointed out would be unfortunate in view of the shortage of registered nurses.

New York City

Personal.—Dr. Chester Ford Duryea has been appointed associate director of the New York Radium Institute.

Immunization Against Diphtheria in Schools.—Arrangements have been made for the administration of the Schick test and the active immunization against diphtheria of susceptible children in 100 public schools of the city.

Reminder of Necessity to Report Communicable Disease.—By order of the health commissioner, perpetual calendars, on which are printed reminders of the necessity of reporting communicable and occupational diseases, have recently been mailed to all the physicians in the city.

Functional Reeducation Work.—The first annual report of the clinic for Functional Reeducation of Disabled Soldiers, Sailors and Civilians shows that of the 1,150 patients treated the first year, about one-half were disabled working men, and the remainder disabled soldiers and sailors.

Clinic for Drug Addicts Closes.—The health department announces the closure of the clinic for the treatment of drug addicts which it has maintained at 145 Worth Street. The attendance at the clinic has fallen to fewer than 100 patients, and these will be transferred to the Riverside Hospital.

Course in Industrial Nursing Service.—The New York University School of Commerce, Accounts and Finance started February 2, a course in standardization of nursing service in industry. The course is arranged for industrial workers, welfare workers and those contemplating entering the field of industrial welfare work.

Distribution of Hospital Fund.—The United Hospital Fund, because of the shortage of funds of many of the institutions, will make a preliminary distribution of approximately $400,000 at once. This represents about double the amount the forty-six institutions received from the fund last year. According to present plans the remainder of the fund will be disbursed about May 1.

Brooklyn Hospital Seeks Endowment Fund.—The Methodist Episcopal Hospital of Brooklyn, in its annual report, seeks an addition of $500,000 to its endowment fund. During the past year the hospital staff has treated in all 12,072 persons. One gift during the year was a $50,000 Liberty bond, the income from which is to be used to meet the expenses of free treatment for the poor.

Annual Report of Mount Sinai Hospital.—The report of the board of trustees of Mount Sinai Hospital, presented at the recent annual meeting, outlined the progress being made on the new buildings being erected on property adjoining the hospital. These buildings will cost $3,250,000 instead of $2,000,000, the amount estimated before the war. Emphasis was laid on the preparations being made for a study of the best methods of disease prevention.

Postgraduate Medical School Seeks Fund.—The board of directors of the New York Post-Graduate Medical School and Hospital have begun a drive to raise an endowment fund of $2,000,000. The institution has purchased the property on the southwest corner of Twentieth Street and Second Avenue, which is the first step toward the enlargement of the facilities of the school, which is no longer adequate for the demands made on it. The enrolment this year is 1,692, double the attendance of last year.

NORTH CAROLINA

Chiefs of Staff Elected.—The following chiefs of staff of the Memorial City Hospital, Winston-Salem, have been appointed: chief of the medical staff, Dr. Sylvester D. Craig, Winston-Salem; chief of the surgical staff, Dr. Everett A. Lockett, Winston-Salem, and chief of the gynecologic and obstetric staff, Dr. Henry S. Lott, Winston-Salem.

Personal.—Dr. Andrew J. Crowell, Charlotte, has been appointed a member of the state board of health, succeeding Dr. Edward C. Register, deceased.——Dr. Joseph Howell Way, Waynesville, is convalescent after an attack of acute lobar pneumonia.——Dr. Andrew J. Warren, Raleigh, has been made head of the state health department of Charlotte, succeeding Dr. C. Curtis Hudson, Charlotte.

Semicentennial of Academy.—The Raleigh Academy of Medicine celebrated its fiftieth anniversary by a dinner at the Yarboro Hotel, February 2, in honor of Drs. Wisconsin I. Royster, Richard H. Lewis and Augustus W. Knox. The after dinner program included: "Greetings from the State Society," by Dr. Carl V. Reynolds, Asheville; "A Historical Sketch of the Academy," by Dr. Hubert A. Royster, Raleigh; "Every Physician a Philanthropist," by Dr. Cyrus Thompson, Jacksonville; "Personal Reminiscences of the Founders," by Dr. Wisconsin I. Royster; "Medicine and the State," by Dr. Richard H. Lewis, and "Our Present and Our Future," by Dr. Augustus W. Knox. Tributes were also paid to Drs. G. G. Thomas, Wilmington, Lewis B. McBrayer, Sanatorium, and Charles O'H. Laughinghouse, Greenville, honored fellows of the academy.

PENNSYLVANIA

Influenza Cases.—More than 50,000 cases of influenza were reported to the state department of health between January 26 and February 28. In the epidemic of 1918 and 1919 a million cases of influenza were reported. The figures for this year's outbreak in the state were: influenza, 50,176; pneumonia, 3,271, and deaths from influenza and pneumonia, 3,068.

Baby Clinic for Ardmore.—A baby clinic was opened in Ardmore, February 10, under the financial auspices of Main Line Branch No. 1, Southeastern Pennsylvania Chapter of the American Red Cross. It is conducted in cooperation with a committee of physicians and visiting nurses. Clinics are conducted from 2 to 3 p. m., Tuesdays and Fridays, in

the Ardmore Red Cross headquarters. Later it is hoped to develop a similar clinic in Bryn Mawr.

Safety Congress.—The Pennsylvania Safety Congress for 1920 will be held in Harrisburg, March 21 to 25, inclusive, under the auspices of the Department of Labor and Industry of the Commonwealth of Pennsylvania. The congress is a continuation of the welfare and efficiency congresses held in the past, which were discontinued during the war. The topics to be discussed are those which are faced in industrial life today and will include the relation of industry to religion; the cost of industrial accidents; the cooperation of the employer and employee in safety; the future of industry; the public utility and its hazards; Americanism; women in industry; organized labor and the safety movement; the rehabilitation of the industrial crippled; health education and industry, and occupational diseases.

Philadelphia

Influenza Epidemic Over.—With comparatively few cases of influenza and pneumonia reported, the health department has removed the restrictions which were put into effect several weeks ago as measures of precaution against the spread of the disease.

Two Thousand Vaccinated.—Because of the discovery of a case of smallpox, March 2, 2,000 persons were vaccinated in West Philadelphia, March 3. Thirty-six Hog Island workers were vaccinated, March 2. The patient was an employee on a ship at Hog Island.

Measles Hospital Needed.—There have been 4,000 cases of measles since January 1, and the health officials say there is no sign of abatement. There have been at least 12,000 additional cases not reported. The department of health is considering the ultilization, exclusively for measles cases, of one of the buildings of the Philadelphia Hospital for contagious diseases.

Osler Memorial Meeting.—At the stated meeting of the College of Physicians of Philadelphia, March 3, Dr. Thomas McCrae read a memoir of the late Sir William Osler; Dr. Hobart A. Hare read a paper on "Sir William Osler as Teacher and Clinician"; Dr. Charles W. Burr, one on "Sir William Osler as a Man of Letters"; Francis R. Packard one on "Sir William Osler, and the Library of the College of Physicians of Philadelphia," and Dr. George W. Norris, one on "Sir William Osler as Host to the Americans in England During the Great War."

Personal.—Dr. Charles L. Furbush, director of the department of health, who has been seriously ill with influenza, has gone to Atlantic City to recuperate.——Dr. George Victor Janvier has been appointed assistant obstetrician to the Philadelphia General Hospital.——Dr. Elmer J. Presper has been appointed medical director of the Civil Service Commission to succeed Dr. William A. Swaim, who resigned.——Dr. Neva R. Deardorff, for nearly two years assistant to the director-general of the Department of Civilian Relief of the Red Cross, has been appointed assistant to the general manager at the national headquarters.——Dr. Charles C. Hart has been elected surgeon of the Pennsylvania Commandery, Military Order of Foreign Wars, of the United States.

Woman's Medical College Campaign Fund Closed.—The extension fund campaign of the Woman's Medical College of Pennsylvania, Philadelphia, for quarter of a million dollars came to a successful close, March 11, when a joint celebration was held to mark the end of the drive and the seventieth anniversary of the founding of the college. Founder's day exercises were held in the afternoon and a final campaign dinner in the evening. The establishment of the department of preventive medicine which was one of the objectives of the campaign has been assured by the recent action of the National American Women's Suffrage Association which, at its recent convention in Chicago, voted $30,000 as a memorial to Dr. Anna Howard Shaw.

To Check Milk Adulteration.—Drastic steps for the checking of the alleged practice of watering milk, recently brought to light through the activities of the bureau of health, are now being taken by that department. Twenty-eight prosecutions have been lodged during the past six weeks. According to John Vogelson, chief of the bureau, it is not the big milk companies that are responsible, but it is the small dealers who buy milk in cans and bottle it themselves that are to blame. Inspectors have found a large number of cases of this violation of the law in all parts of the city, but the greatest number has been reported from downtown. Many samples tested at the Phipps Institute have been found to contain butter fat below the legal standard of 3.25 per cent.

SOUTH CAROLINA

Building for Physicians.—An office building has just been completed at the corner of Brown and North streets, Greenville, by a company whose president is Dr. R. E. Houston and secretary and treasurer Dr. Samuel G. Glover. The building will be occupied by seven physicians, who are joint owners of the building.

State Association Meeting.—The annual meeting of the South Carolina State Medical Association will be held at Greenville, April 20 to 21, under the presidency of Dr. Ebenezer W. Pressly, Greenville. The address in medicine will be delivered by Dr. Edward H. Goodwin of the University of Pennsylvania, Philadelphia, and that on surgery by Dr. Stuart McGuire, Richmond, Va.

TENNESSEE

Physician's Bureau Elects Directors.—At the annual meeting of the Physician's Business Bureau of Memphis, Drs. John L. Jelks, Otis S. Warr, Hiram B. Everett, Louis Leroy, William T. Black, William Britt Burns, John C. Ayres, Louis Levy, Arthur G. Hudson, Rufus W. Hooker, Abraham L. Blecker, Frank D. Smythe, John J. Huddleston and Alfred B. DeLoach were elected directors.

Campaigns for Hospitals.—The campaign for the Jewish Hospital at Memphis, when it had raised $400,000, was delayed temporarily on account of the prevalence of influenza. The campaign will be reopened, however, and an additional $100,000 will be raised.——In order to raise the half million dollars for the completion of the Methodist Hospital at Memphis, now in course of construction, the conferences of Memphis, North Mississippi and Arkansas will again be asked to contribute, in addition to the gifts already made.

WISCONSIN

Physicians' Club Organized.—The Ripon Physicians' Club has been organized, with Dr. Sidney S. Hall, president, and Dr. Orvil O'Neal, secretary.

Eye and Ear Men Elect.—At the annual meeting of the Milwaukee Oto-Ophthalmic Society, February 6, Dr. Gustavus I. Hoague was elected president; Dr. Richard J. Muenzner, vice president, and Dr. John E. Guy, secretary. At the next meeting of the society, March 16, Dr. Justus Matthews, Minneapolis, will conduct a clinic.

Personal.—Dr. Otho A. Fiedler, Sheboygan, has been reappointed a member of the state board of health.——Dr. Nicholas J. Hamilton, Madison, convicted several years ago of second degree manslaughter and sentenced to seven years' imprisonment at the state prison, Waupun, has been restored to citizenship by the governor, but will not be permitted to practice medicine.——Dr. N. J. Malloy has been appointed health officer of Fond du Lac, succeeding Dr. Frank L. McGauley, resigned on account of illness.

GENERAL

American Physicians Decorated.—The king of Greece visited the American Red Cross Dispensary of Saloniki, March 7, and decorated the officers of the medical staff.

Military Surgeons to Meet.—The twenty-eighth annual meeting of the Association of Military Surgeons of the United States will be held at New Orleans, April 22 to 24, with headquarters at the Hotel Grunewald under the presidency of Col. Joseph A. Hall, M. C., N. G., Ohio.

Issue Themselves Licenses.—Just prior to a complete change in the personnel of the Oklahoma State Board of Medical Examiners recently, the outgoing board consisting of eight members, including an osteopath, are reported to have issued to themselves complimentary licenses recorded as having been based on a written examination. The record indicates that the papers of each one were graded at exactly 92 per cent.

National Tuberculosis Association Meeting.—The annual meeting of the National Tuberculosis Association will be held at the Hotel Statler, St. Louis, April 22 to 24, under the presidency of Dr. Victor C. Vaughan, Ann Arbor, Mich. Dr. Vaughan has appointed the following committee to make nominations of twelve directors to serve for a term of five years: Dr. Vincent Y. Bowditch, Boston, chairman; Drs. Edward R. Baldwin, Saranac Lake, N. Y., Walter Jarvis Barlow, Los Angeles, Hoyt E. Dearholt, Milwaukee, and Henry W. Hoagland, Colorado Springs, Colo.

Certification of Clinical Thermometers.—The fact that many clinical thermometers of faulty workmanship are offered for sale has been repeatedly discussed. An effective remedy for this evil has been found in Massachusetts, after careful tests of 10,000 thermometers by the state commissioner of weights demonstrated that 25 per cent. were defective. Under a new state law, no clinical thermometer may be offered for sale in Massachusetts unless its accuracy has been attested by the certificate and seal of the state commissioner of weights and measures. The penalty for violation of the act is a fine of $50 for each uncertified thermometer offered for sale.

Civil Service Examination.—Application will be received until June 29 by the United States Civil Service Commission for an open competitive examination for bacteriologist and junior bacteriologist in the United States Public Health Service, the salary for bacteriologist ranging from $130 to $180 a month; for associate bacteriologist, from $90 to $130 a month; for assistant bacteriologist, from $70 to $90 a month; for junior bacteriologist, $70 a month, and for junior bacteriologist part time, at $30 to $50 a month. Appointees will be allowed subsistence and one room, or $15 or $20 for commutation and quarters, according to grade of station.

Wood Alcohol Poisoning.—The National Committee on the Prevention of Blindness sent recently a request for authoritative information to the health officers of each state, the health officers of 100 of the largest cities, state commissions for the blind, associations for the blind, hospitals, and to prosecuting attorneys asking for the number of deaths and the cases of total or partial blindness occurring since Aug. 1, 1919, from alcohol, wood alcohol "whisky," denatured alcohol and forms of wood alcohol poison unknown. Up to date answers have been received from about one third of the questionnaires sent out:

No. of deaths from wood alcohol poisoning	145
Wood alcohol straight	10
Wood alcohol "whisky"	61
Denatured alcohol	4
Form of wood alcohol poison unknown	68
Florida toilet water	1
Extracts	1

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital, Philadelphia, $10,000 for the endowment of a room in memory of himself and wife, Mt. Sinai Hospital, $3,000, and Jewish Sanatorium, Eagleville, Pa., $1,000 by the will of Herman Prager.

St. Barnabas Hospital, Newark, N. J., $3,000 by the will of Miss A. A. Westervelt.

Julia F. Burnham Hospital, Champaign, Ill., a gift of $75,000 by Mrs. Newton M. Harris, with an additional $25,000 conditional on the subscription of a like amount by the community.

Sanatorium for blind babies, $2,500; Harvard Dental School, $500 by the will of Mrs. Louisa A. Beal.

Harrisburg, Pa., Hospital, $25,000 by the will of Mrs. Andrew J. Dull.

St. Luke's Hospital, Bethlehem, Pa., $5,000 to endow a bed to be known as the Josiah Bachmann Free Bed, by the will of Josiah Bachmann.

Bryn Mawr, Pa., Hospital, $50,000 by the will of Mrs. Lois Buchanan Cassatt.

Miami County, Ind., Hospital, Peru, $1,000 for the endowment fund by the will of Ner Black.

Physicians Needed in Orient.—The Interchurch World Movement (45 West Eighteenth Street, New York City) has issued an appeal for physicians for five years' service in the near and far eastern countries. The appeal is directed chiefly to recent graduates and to physicians discharged from military service who have not yet become reestablished in practice. In addition to general practitioners, specialists in pathology, neurology and psychiatry are urgently needed for service in Turkey, Syria, Palestine, Persia, Siam, Indo-China, Malaysia, Philippine Islands, India, Africa, China, and Japan. There are places for more than 600 physicians, men and women. Married physicians who enlist for five years will be provided with a home and an annual salary equivalent to $3,000 in United States currency. Single physicians will be allowed an annual salary of $2,000. All traveling expenses will be paid. A grant from the Rockefeller Foundation for a course in postgraduate work in America may be available to those who give five years' service in China.

The Influenza Epidemic.—During the week ending February 21, the incidence of epidemic influenza declined definitely in thirty-seven of forty states from which reports were received by the Public Health Service. Increases were recorded in Georgia, Oregon and Vermont, and only relatively small decreases were noted in Maine, New York and Louisiana. Taking the forty-six large cities as a whole the peak of mortality was reached in the week ending February 14, when there was an excess of 1,322 in the annual mortality rate per hundred thousand of population as compared to the norm for the corresponding week of the median period 1910-1916. In the weeks immediately preceding and following this the excess rates were 1,241 and 853, respectively. At the height of the epidemic of 1918, the excess annual mortality rate in the three peak weeks was 4,592, 4,695 and 3,332 per hundred thousand. A statistical comparison of the epidemics of 1920 and 1918 reveals a striking constancy in the ratios of the excess mortality rates. Although the peak rates for the different cities vary from 5 to 152 per cent. as compared to those for 1918, the mortality chargeable to the present epidemic is so far under 30 per cent. of that in 1918. In five cities—St. Louis, Kansas City, Detroit, Milwaukee and Minneapolis—the peak rate in this epidemic has exceeded that in 1918, while the excess of mortality in Albany, N. Y., Baltimore, Boston, Cleveland, Richmond, Va., San Francisco and New Orleans, was less than 20 per cent. of that recorded in the first epidemic, New Orleans having the lowest ratio, 5 per cent. There was a definite geographic movement of the epidemic, which developed in two well separated areas, one along the Great Lakes and the other in the Middle Atlantic region represented by New York City and Washington, D. C.

Medicines and Hospital Supplies for Sale by the Government.—The Surplus Property Division, Office of the Quartermaster General of the Army, offers for sale to all classes of buyers a quantity of surplus drugs and medical supplies on which fixed prices have been established. The present offer will be in effect from March 5 to April 5, 1920. No official forms are required; orders may be made by letter or telegram. Full shipping instructions should accompany all orders. No deposit will be necessary on orders amounting to less than $1,000.

A list of articles for sale contains the prices and minimum quantities of drugs, of which the following are a few examples: boric acid tablets (324 mg.) 500 for $0.60; ammonium chlorid, $0.20 a pound; silver nitrate crystals, $0.76 an ounce; barbital tablets (324 mg.), 100 for $1.50; caffein citrate tablets (0.65 mg.), 500 for $3.30; chloral hydrate, $0.06 an ounce; chloroform (one-fourth pound tins), $0.25 a pound; collodium, $0.02 an ounce; iodin, $0.23 an ounce; nitroglycerin tablets (65 mg.), 20 for $0.10; phenol (5 pound tins), $0.16 a pound; aromatic spirit of ammonia (one-half pound bottle), $0.65 per pound; strychnin sulphate (1 mg. hyp. tablets), 20 for $0.05. Also listed are surgical instruments, rubber aprons, operating tables, litters, bandages and crape paper.

Further information may be obtained from and orders may be sent to the "Zone Supply Officer" at any of the following addresses: Army Supply Base, Boston; 461 Eighth Avenue, New York City; Twenty-First Street and Oregon Avenue, Philadelphia; Coca Cola Building, Baltimore; Transportation Building, Atlanta, Ga.; Army Building, Fifteenth and Dodge Streets, Omaha; Fort Mason, San Francisco; Seventeenth and F Streets N.W., Washington, D. C.; Newport News, Va.; Jeffersonville, Ind.; 1819 West Thirty-Ninth Street, Chicago; Second and Arsenal Streets, St. Louis; Audubon Building, New Orleans; San Antonio, Texas; New Cumberland, Pa.; Columbus, Ohio, or to the Surplus Property Division, Medical and Hospital Section, Munitions Building, Washington, D. C.

FOREIGN

Hospital Shelled by Turks.—An Associated Press telegram of February 29 states that the American Hospital at Marasch was shelled by Turkish nationalists, January 22 and 23.

Edinburgh College of Surgeons Admits Women.—At an extraordinary meeting of the College of Surgeons of Edinburgh held, March 3, it was resolved that women should be admitted to fellowship in the college.

Coordination Between Hospitals in France.—Dr. Tuffier of Paris has been charged with the permanent task of technical inspection and supervision of the public health service hospitals of the country, to arrange for effectual coordination.

Council on Natality.—The French authorities have appointed a Conseil supérieur de la natalité in the public health service. Our exchanges comment on the fact that only three physicians are included in the thirty members of the council.

Chemical Companies Merge.—Plans are well under way for the amalgamation of two of the largest chemical companies in Great Britain, Brunner Mond & Co., with a capital of more than $48,665,000 and the Castner Kellner Alkali Co., with a subscribed capital of $4,866,500.

Tax on Roentgen-Ray Plates.—The *Archives d'électricité* of recent date brings a vigorous protest by Dr. de Courmelles against the "iniquity" of the present luxury tax in France of 10 per cent. on the plates used in radiography. "As if," he exclaims, "it is a luxury to have a diagnosis cleared up by radiographic examination."

Night Medical Service at Paris.—The night medical service in Paris has been reorganized and thirty physicians under 30, or 35 if they have served in the war, are to be appointed to serve in turn, with an automobile at their disposal. The term of service is for three years, and the salary is 3,000 francs. This amounts to 50 francs for each night of service, the number falling to each physician being about sixty. Provision is also made for five substitutes. The service is connected with the police department.

Medical Cooperative Society.—The physicians of Brussels, Antwerp and Liége have founded in each of these cities a cooperative store for the benefit of physicians, pharmacists, veterinarians, midwives, and widows of members of these professions, and also docteurs en sciences. The society at Liége is affiliated with the Association contre la vie chère at Antwerp, and the Coopérative médicale at Brussels, and the store will carry samples of goods to be ordered, besides a large stock of canned goods, cigars, etc. The shares are 100 francs each and no one is allowed to buy more than ten shares. The Prévoyance médicale, of Liége, as it is called, started with 183 shareholders and the store opened in January.

Deaths Abroad.—Sir **Thomas Peter Anderson Stuart,** University of Edinburgh, 1882; D.Sc., University of Durham, 1911; LL.D., University of Edinburgh, 1900; aged 63; professor of physiology and dean of the medical faculty of the University of Sydney, New South Wales; who organized the expedition of the Royal Society of London, to Funafuti, an island of the Ellice Group in the Pacific, which by boring to a depth of 1,000 feet into coral rock secured confirmation of the Darwinian theory of reef formation; died, March 3. ——Dr. **Knud Poulsen,** a leading physician in Denmark, succumbed to fulminating infection after droplets from a streptococcus sore throat had been coughed in his face, aged 48.——Dr. **Braun,** inspector-general of the public health service in Morocco, and recently appointed director of the same service at Strasbourg.

The Nursing Profession in Europe.—With the assistance of the American Red Cross, the first school for nurses in Czecho-Slovakia has been established at Prague under the direction of American nurses. It is expected that within three years the training school will be in charge of Czecho-Slovakian nurses, for two native women have been sent to the Massachusetts General Hospital to prepare for this eventuality. In Poland there are now over fifty nurses' aides in training at various hospitals under the direction of the American Red Cross and more than 130 volunteers are receiving preliminary instruction. The need for nurses is felt keenly in Eastern Europe, for fighting is still going on and thousands of sick and hungry refugees are returning from their exile in Russia, bringing with them typhus fever, cholera and dysentery.

Memorial Tributes to Baccelli.—A national committee in Italy has charge of the task of honoring the memory of Guido Baccelli, and on the fourth anniversary of his death a notable meeting was held in the capitol where a bust of Baccelli was unveiled and his important and pioneer work as physician, medical teacher and research worker, and as statesman was extolled by leading men of the nation. It is the third time that a special celebration in his honor has been held in the capitol—two of them during his lifetime—an unprecedented tribute. A tablet was also placed on his late residence, and a special public meeting was planned in the Baths of Caracalla, among the excavations of ancient Rome which Baccelli inaugurated and superintended. To him are due also the laws relating to the draining of the marshes around Rome; he inaugurated also the administration of heroic drugs by the vein.

Red Cross Items.—The first meeting of the General Council of the League of Red Cross Societies was held in Geneva, Switzerland, March 2 to 10. Two main topics were discussed at the meeting. The first related to the improvement of public health and the prevention of disease according to the program outlined at the Cannes meeting in April, 1919, and the second was the consideration of the program of service in peace time, the most effective means of extending the membership and resources of the Red Cross. In addition to these general topics the thirty societies which are members of the league supplied samples of posters, pamphlets, moving picture films, and other material used during or since the war by the national societies.——The National Red Cross Society of Czecho-Slovakia and Uruguay have joined the League of Red Cross Societies.——Dr. Octave Monod of the Pasteur Institute, Paris, has been appointed assistant chief of the department of tuberculosis.——Mr. C. R. Hewitt, formerly librarian of the Royal Society of Medicine, London, has been made librarian of the league.

Scientific Publications in Germany.—The *Münchener medizinische Wochenschrift* quotes Prof. von Harnack, the librarian, speaking at a recent convocation of the University of Berlin on the plight of German science. He explains it as follows: "(1) Because we are unable to buy any more foreign books and periodicals; the library with its present resources can subscribe only to 170 foreign periodicals instead of 2,300. The library had appropriated 112,000 marks to purchase works that had been published in other countries during the war, but it would take over a million marks to buy these works now. (2) Our scientific journals in Germany are in a most precarious condition (auf dem Aussterbeetat) as the publishers are no longer able to take the risks. (3) No more scientific monographs can be published as the scientific academies are no longer able to subsidize them. (4) The books already on hand in Germany, especially the great collected works on scientific subjects, are flowing out of the country in great numbers. Even the textbooks, when the editions dating from cheaper times are exhausted, will become unbelievably expensive."

LATIN AMERICA

Lethargic Encephalitis in Peru.—The Lima Academy of Medicine states that several cases of lethargic encephalitis have occurred in Lima.

Branch of American College of Surgeons in Peru.—During the visit of Drs. Mayo and Martin to Lima, Peru, there was organized in that city a branch of the American College of Surgeons.

Death of Dr. Coyula.—Dr. Luis Coyula, mayor of the city of Mexico, died suddenly on March 3 of heart disease. Dr. Coyula was a former professor of physiology in the school of medicine.

Medical Expert Wanted in Paraguay.—Among various experts whose services are desired by the government of Paraguay, one should be an expert in tropical diseases. The minister in Washington is in charge of the matter.

Influenza in Mexico.—The epidemic of influenza in Mexico is abating rapidly. All churches, theaters and schools have been reopened. The official reports show that there have only been sixty-six deaths from the disease recently.

Brazilian Hospital Items.—Dr. Graciano Feliciano, present head of the public health service of Bahia, has been appointed assistant director of the Central Military Hospital.——The new military hospital at S. Paulo will soon be open, with Lieut.-Col. Brenno Moniz as its first director.

New Asylum for Infants in Santo Domingo.—An infant welfare association under the name of *Gota de Leche* has recently been established in Santo Domingo. At its headquarters it has accommodations for twelve children, in addition to a medical dispensary, milk station, and a public bath department.

Enforcement of Patent Medicine Regulation.—An executive resolution was promulgated in Havana, February 11, by which the following articles of the pharmacy regulations of 1913, enforcement of which had suspended were finally put into effect:

ART. 46.—Foreign patent medicines must be registered with the Bureau of Health by agents or importers, and their circulation in the country shall be permitted only upon fulfilment of the following conditions: (*a*) The labels must name the constituents to which the patented article owes its medicinal property; (*b*) the labels must also state the name of the manufacturing druggist or company in the country of origin.

ART. 47.—No patent medicine shall be put on sale before its registration with the Bureau of Health. A certificate of registration will be issued by the said bureau within three days from date of application.

Gold Medal Presented to Dr. Pérez Araníbar.—The Sociedad de Beneficencia Pública of Lima, Peru, recently presented its former director, Dr. A. Pérez Araníbar, with a jeweled gold medal in token of appreciation of his indefatigable and efficient management of this official system of organized charities. In commenting on the event, the *Crónica Médica* remarks that the tribute is simple justice, as he took a very

active part in carrying through a number of works and improvements of a medicosocial nature while he was in office during 1917 and 1918.

Changes in the "Brazil-Medico."—Our Rio de Janeiro exchange enters on 1920 and its thirty-fourth volume with a change of management, the former general manager for twenty-six years, Dr. Bulhoes Carvalho, having been obliged to resign his connection with the journal as he has been appointed director of the state department of statistics. The editor in chief of the *Brazil-Medico*, Dr. Azevedo Sodré, remains in charge and his two sons have assumed the management. They have already enlarged the journal and introduced an extensive news department and current literature department, following the style of THE JOURNAL to some extent. The management announces further that arrangements have been made for special correspondence from four of the principal cities of Brazil, and from Paris, Berlin and New York.

Government Services

Base Hospital Receives Appropriation

Seventy-five thousand dollars has been appropriated from the funds of the construction division of the War Department for the improvement of the base hospital at Fort Sam Houston.

Hospital Discontinued

The Surgeon-General's recommendation to discontinue U. S. General Hospital 43, Hampton, Va., has been approved and the director of real estate service has been instructed to cancel the lease and return the property to the board of managers of the National Home for Disabled Volunteer Soldiers.

Medical Veterans of the World War

Col. Frederick F. Russell, M. C., U. S. Army, secretary of the Medical Veterans of the World War, states that during February, 169 new members joined, making a total membership of 2,711 divided as follows:

Medical Corps, U. S. Army	1,245
Medical Corps, U. S. Navy	51
Medical Corps, U. S. P. H. S.	62
Contract Surgeons, U. S. Army	88
Acting Assistant Surgeons, U. S. P. H. S.	47
Members Local Board	527
Members Examiner, Local Board	183
Members Medical Advisory Board	508

Bill to Purchase Land of Army Hospital at Azalea, N. C.

Senator Wadsworth, chairman of the Committee on Military Affairs, introduced a bill, March 6, authorizing the payment of $55,000 for the purchase of land on which the army hospital at Azalea, North Carolina, is located. The hospital buildings at this site cost the government $2,600,000, but no arrangement has ever been made for the purchase of the land on which the buildings are located. Secretary of War Baker wishes to use this camp as a permanent one, and has asked Congress for authorization to purchase the land, which consists of 360 acres. It is located at an altitude of 2,000 feet and is well situated for the treatment of army tuberculosis patients. The hospital has a capacity of 1,300 beds and there are 900 patients there at present.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Chancellor—Austin, B. F. (L.)
Mobile—Brown, R. D. (C.)

ARKANSAS

Fayetteville—Wilson, D. R. (L.)
Forest City—Bridgeforth, D. O. (M.)
Hartford—Routh, H. P. (C.)
Mellwood—Chiatt, J. N. (C.)
Scranton—Lipe, E. N. (L.)

CALIFORNIA

Berkeley—Kierulff, H. N. (C.)
Calexico—Sims, P. N. (L.)
Los Angeles—Currie, A. H. (L.)
Dow, J. N. (C.)
Koebig, W. C. S. (C.)
Oakland—Hamilton, G. B. (M.)
Milliken, W. P. (C.)
Placentia—Thibodo, F. H. (C.)
Redlands—Ide, C. E. (C.)
San Francisco—Griffin, C. F. (C.)
Reinstein, A. H. (C.)
Topping, F. P. (M.)
Sanger—Madden, T. F. (L.)

COLORADO

Denver—Lee, G. F. (L.)
Wescott, O. D. (M.)

CONNECTICUT

Hartford—Owens, W. T. (M.)
Seigall, H. A. (L.)

DISTRICT OF COLUMBIA

Washington—Covey, C. B. (L.)
Ford, R. H. (C.)
King, H. C. (C.)
Tilton, J. A. (L.)
White, L. M. (C.)

FLORIDA

De Land—McDaniel, R. F. (L.)
Jacksonville—Day, G. (C.)
Gilbert, R. E. (L.)

GEORGIA

Augusta—Davis, T. L. (M.)
Talbotton—Douglass, W. C. (L.)

ILLINOIS

Cambridge—Hawks, J. D. (C.)
Chicago—Carlin, H. W. (L.)
Culver, F. E. (C.)
Greenberg, P. B. (L.)
Hans, E. (L.)
Karatz, M. B. (L.)
McLean, G. M. (C.)
O'Connor, T. P. (L.)
Phillips, W. (C.)
Pilot, I. (L.)
Roberg, O. H. (M.)
Stam, N. C. (L.)
Thexton, J. M.
Woodnick, G. W. (M.)
Fairland—Murphy, L. J. (C.)
Kankakee—Riach, T. J. (M.)
Marseilles—Weirich, A. J. (C.)
Mount Carroll—Clay, W. E. (L.)
Wilmette—Conley, B. M. (C.)

INDIANA

Anderson—O'Neill, T. J. (L.)
Evansville—Whitledge, H. E. (C.)
Jasonville—Hadley, A. W. (C.)
Kokoma—Peters, B. J. (L.)
Kramer—Martin, W. D. (L.)
Lapaz—Tallman, H. H. (C.)
Linton—Thomas, A. A. (C.)
Madison—Davis, R. E. (L.)
Onward—Badders, A. C. (C.)
Valparaiso—Evans, H. M. (L. C.)

IOWA

Farragut—Beatty, J. J. (L.)
Keswick—Negus, C. (L.)
Lake City—Middleton, H. E. (L.)
Millerton—Corbin, S. W. (M.)
Monroe—Billingsley, J. W. (L.)
Sioux City—Rhodes, F. G. (C.)

KANSAS

Galva—Gore, L. M. (L.)
Lawrence—Barnes, R. E. (L.)
Ensign, C. F. (L.)

LOUISIANA

Baton Rouge—Hyes, A. S. J. (L.)
Buras—Ballowe, L. L. (C.)
New Orleans—Kemp, R. S. (L.)

MAINE

Portland—Nichols, N. E. (L. C.)

MASSACHUSETTS

Boston—Carney, H. E. (C.)
Strong, R. P. (Col.)
Ullian, L. J. (L.)
Northampton—Greene, E. C. (M.)
Westboro—Clark, A. U. F. (C.)

MICHIGAN

Battle Creek—Read, A. J. (C.)
Detroit—Des Rosiers, A. L. (L.)
Krohn, A. H. (L.)
Mallow, O. B. (C.)
Oill, G. V. (C.)
Wehenkel, A. M. (C.)

MINNESOTA

Rochester—Walker, J. C., Jr. (L.)
Sauk Center—Lamb, H. L. (M.)
St. Paul—Beaudoux, H. A. (C.)

MISSISSIPPI

Lucien—Lofton, A. C. (L.)
Oakvale—Polk, P. R. (C.)

MISSOURI

Bel Air—Holligsworth, W. Y. (C.)
Bowling Green—Butzke, E. J. (L.)
Kansas City—Lynn, W. J. (M.)
St. Louis—Farrell, J. A. (L.)
Kuhlmann, F. C. E. (M.)

NEBRASKA

Marion—Bartholomew, W. S. (L.)
Oconto—Wade, J. C. (C.)

NEW JERSEY

Jersey City—Henderson, R. D. (L.)
Montclair—Mount, W. B. (L.)
Newark—Liebmann, W. C. (L.)
Passaic—MacGuffie, R. N. (L.)
Trenton—Gosline, H. I. (M.)
Rosenthal, L. V. (L.)

NEW MEXICO

Fort Bayard—Little, O. W. (C.)
Gallup—Allison, D. (C.)
Mescalero—Callaway, J. R. (M.)

NEW YORK

Albany—Van Winkle, H. L. (M.)
Brooklyn—Bogan, R. (L.)
Logue, J. (C.)
Moore, W. V. (L.)
Piquet, S. D. (L.)
Buffalo—DeGraff, R. M. (L.)
Thoma, F. W. (L.)
Dannemora—Robert, H. R. (L.)
Elmhurst—Graves, L. K. (M.)
Franklinville — Reimann, L. E. (L.)
Gowanda—Johnson, H. W. (M.)
New Bridge—Stygall, J. H. (C.)
New York City—Baughman, W. H. (M.)
Hansen, H. B. (L.)
Irish, C. G. (L.)
McGovern, F. X. (L.)
Osincup, G. S. (C.)
Richardson, P. A. (C.)
Strowger, C. W. (C.)
Thornley, J. P. (C.)
Webster, C. E. S. (M.)
Spencer—Terwilliger, F. (C.)

NORTH CAROLINA

Greensboro—Compton, B. S. (L.)
Newland—Long, M. I. (L.)

OHIO

Cleveland—McCleery, J. M. (L.)
Columbus—Philips, D. P., Jr. (L.)
Gallipolis—Rose, E. J. (C.)
Orwell—Sellers, R. (M.)
Springfield — Dornblaser, H. B. (C.)
Miller, E. (L.)

OKLAHOMA

Arnett—Stoll, A. A. (C.)
Muskogee—Nicholson, H. M. (L.)

PENNSYLVANIA

Hepburnville—Waltz, A. D. (L.)
Lancaster—Brown, H. C. (L.)
Lemoyne—Everhart, E. S. (M.)
Philadelphia—Grimes, R. B., Jr. (M.)
McFarland, J. (M.)
Shamokin—Yeager, W. H. (M.)
Sharon—Millikin, H. W. (L.)
Segerman, J. F. (C.)
Stroudsburg—Van Etten, H. S. (L.)
Wyncote—Bower, J. O. (C.)

RHODE ISLAND

Newport—Cole, N. B. (M.)
Providence—Mulligan, E. W. (L.)

TENNESSEE

Chattanooga—Sullivan, B. (L.)
Irving College — Brown, P. D. (M.)
Memphis—Bender, C. A. (C.)
Robinson, C. W. (L.)

TEXAS

Abilene—Howser, J. P. (C.)
Goose Creek—Culpepper, W. L. (L.)
Houston—Hamilton, G. (M.)
Lone Oak—McCrum, S. S. (L.)
Vernon—Reger, H. J. (C.)

VERMONT

Ludlow—Kerrigan, J. P. (C.)

VIRGINIA

Elk Creek—Rhudy, B. E. (C.)
Uno—Dovell, E. B. (C.)

WASHINGTON

Seattle—Hansen, M. M. (L.)
Tooker R. N. (C.)

WEST VIRGINIA

Sistersville—Boice, R. H. (L.)

WISCONSIN

Milwaukee—Grosskopf, E. C. (C.)

Foreign Correspondence

LONDON

Feb. 13, 1920.

The Study and Treatment of Mental Disorders in Early Stages

In a joint letter to the *Times*, Allbutt, Barlow, Savage, Mott, Armstrong-Jones and others draw attention to the urgent need of reform in the methods of dealing with mental disorders. In 1918, the Medico-Psychological Association of Great Britain and Ireland, after considering the amendment of the existing lunacy laws, reported that there are few facilities for patients threatened with mental breakdown to obtain skilled treatment until they are certified as insane and placed in asylums, whereas the early symptoms often occur long before certification is possible; that, owing to delay in treatment, the most valuable time for securing early recovery is lost; that the public, being alive to the material and moral damage which certification often inflicts on the patient and his relatives, refuses to resort to it even when it has become possible, still further postponing efficient treatment; that the subsequent course often shows that certification might have been avoided had there been facilities for treatment under other conditions, and that many physicians, having had no opportunity of gaining knowledge of the manifestations and treatment of mental disorders in their early stages, fail to recognize the seriousness of the condition and are, further, deterred by the necessity of certifying the patient from advising suitable treatment. The signatories of the letter endorse the proposals made by the association for the provision of treatment in the early and curable stages without certification, the provision of psychiatric clinics, especially in connection with large hospitals and medical schools, and the extension of the system of voluntary admission (which now obtains in respect of licensed houses and registered hospitals for the insane). Of these proposals, the establishment of psychiatric clinics is considered the most important. In regard to these, this country is deplorably backward compared with other European countries and the United States.

Vocal Therapy

The therapeutic value of singing, both by causing full expansion of the lungs and by its invigorating effect on mind and body, is not sufficiently appreciated. A "Vocal Therapy Fund" has been formed with a committee containing several well known leaders of the profession, including Mott, Dundas Grant and Martin Flack. In appealing for funds, the committee points out that the work is partly curative, consisting of individual training, under medical supervision, of men suffering, through shock and strain, from stammering, aphonia or mutism, and partly restorative, by instruction in choral singing, taking advantage of the well known power of song to cure ailments affecting speech and respiration. Trained choirs have been organized which give concerts both in and out of hospitals, and "song centers" have been started at general and special hospitals and hostel centers in London and the provinces. It is thought that the treatment would be especially applicable to the many thousands of medically unfit men discharged from the military hospitals who are unable to return to the full use and enjoyment of life.

A Diploma in Medical Radiology and Electrology

The increasing importance of electricity and the roentgen rays in therapeutics is being recognized in several ways. A movement is on foot to give full staff rank to the medical officers in charge of the departments devoted to these agents at the hospitals. The University of Cambridge has instituted a diploma in medical radiology and electrology, the first examination for which will be held next July. A course of instruction in physics and electrotechnics was begun at Cambridge in January, and one on radiology will begin in April. Most of the leading workers in these subjects are taking part in the teaching.

Australasian Medical Congress

After a lapse of more than six and one-half years, the Australasian Medical Congress will again meet. The eleventh session will be held at Brisbane from August 23 to 28, under the presidency of Hon. W. F. Taylor, M.D. A resolution of the congress that future meetings shall be meetings of the branches of the British Medical Association has been declared informal, but opportunity will be given for a formal decision as to whether the functions of the congress and its assets shall be taken over by the British Medical Association. Preparations for the Brisbane session were begun in July, 1914, with the intention of holding it in 1917, but the outbreak of war postponed the meeting. The work of the congress has been divided into eleven sections, of which one is on Naval and Military Medicine and Surgery, to which a large contribution is expected from returned army and navy medical officers.

Flying Laboratories

The Cairo to Cape aeroplane flight across the whole of Africa from north to south, in which Dr. Chalmers Mitchell, the well known zoologist, is carried for purposes of scientific observation, has led Sir Ronald Ross to suggest in the *Times* that the time has come when it is feasible to consider the possibility of using aeroplanes for the medical exploration of Africa and other dark countries. He cannot say how far the suggestion would be practicable, especially in countries largely covered with bush and not at present possessing cleared landing places. But such an exploration would be of great use. He suggests that each exploring plane should carry not only a pathologist and a small portable laboratory, but also one or more clinicians, for the purpose of relieving the sickness of the poor natives who otherwise might never hope for the benefits of medical science. Research would, of course, go hand in hand with clinical work. It would be necessary ultimately to establish base hospitals and laboratories at the main aerodromes along the route.

Prohibition of the Importation of Japanese Shaving Brushes

In view of the fact that cases of anthrax have resulted from the use of shaving brushes manufactured in Japan, as reported in previous letters to THE JOURNAL, the government has prohibited the importation of shaving brushes from that country.

Physicians Among the German War Criminals

The list of German war criminals whose surrender is demanded by Great Britain contains the names of several commanders of submarines who sunk hospital ships. The general principle that has been followed is not that of demanding men who carried out any system, however inhuman and contrary to the rules of civilized warfare, under superior orders, but of demanding only those who, in addition, committed atrocities on their own account. For offenses against prisoners of war in German camps, eighteen physicians are wanted.

PARIS

Feb. 5, 1920.

Renewed Efforts to Increase the Birth Rate in France

J.-L. Breton, the newly appointed minister of social hygiene, social assistance and social prevision, recently submitted to the president of the republic for his signature a proposed decree providing for the establishment of a Conseil supérieur de la natalité, whose duty it shall be to investigate and promote all measures that may serve to combat the decrease in population, to increase the birth rate, to aid child welfare, and to give added protection to large families. In giving the reasons that moved him to propose this decree, the minister refers to the many serious disadvantages that result from the low birth rate in France, especially in view of the fact that the war has deprived France of at least 2,000,000 young men. This serious situation in France, he stated, had already been the subject of much study. It has long been recognized that it could not be attributed to a single cause, but that a multiplicity of causes was involved. Likewise, in order to combat the situation, a single remedy would not suffice, but that a series of remedies must be applied, some of a moral, and some of a material and economic nature. The Conseil supérieur de la natalité consists of thirty members, among whom are Dr. Pinard, member of the chamber of deputies, and formerly professor of the Faculté de Médecine de Paris; Dr. Jacques Bertillon, president of the Alliance national pour l'accroissement de la population, and Dr. Charles Richet, professor of the Faculté de Médecine de Paris. Professors Richet and Pinard have been appointed vice presidents of the council.

Duties of Pharmacists in the Matter of First Aid

There is no law compelling a pharmacist to dress the wounds of any person. However, from a recent decision of the Cour de Cassation, it would appear that a pharmacist who is summoned by the police cannot repudiate the summons thus served. The case in question was that of a pharmacist of Grenoble, who was summoned one night to

dress a slight wound that a young man had received. The pharmacist had refused to furnish the service required. The police court reached the decision that, the benign character of the wound being known, there was no reason why the pharmacist should not have dressed it. The pharmacist was found guilty and sentenced in consequence of his neglect. When the case came before the Cour de Cassation (the supreme court of appeal) the pharmacist pleaded the fact that, not being a physician, he could not legally be required to perform the service in question. The Cour de Cassation, however, rejected his appeal, holding that a single act of intervention in the treatment of the wound would not have constituted an illegal act in the exercise of the rights of the medical profession. This decision has been severely criticized by lawyers who are experts in medicolegal and pharmaceutical matters of this nature. One such expert compares the case of the pharmacist of Grenoble to that of another pharmacist of the same region who was sentenced, a few years ago, for having dressed a wound, which was also of benign character—at least, to all appearances. It is true, in the second case, the patient died of tetanus a few weeks after the dressing was applied by the pharmacist. The points of resemblance in the two cases show that it is difficult for a judge to base a verdict on the supposedly benign character of the wound.

The Use of Ether in the Treatment of External Infections

For several years Dr. C. Souligoux, surgeon to the hospital of Beaujon, has been employing ether as a routine in the treatment of external infecions (wounds, compound fractures, lymphangitis, erysipelas) and of peritoneal infections. The treatment of generalized peritonitis by ether lavage of the peritoneum has even come into general use. In view of this fact it may be of interest to review the circumstances under which this method of treatment came into use. In 1892, a patient who had been run over by a heavily loaded dray was admitted to the Hôpital de la Pitié. He was treated in the service of Professor Le Fort. Both legs of the patient were badly crushed. There were comminutive fractures, complicated by wounds filled with the mud of the street, and it seemed useless to hope for the recovery of the patient unless both legs were amputated at once. The patient refused point blank to have the amputation done, and would not listen to reason. Souligoux, therefore, proceeded to cleanse the wounds, using for this purpose alcohol and ether. A plaster cast was applied to each leg. To the profound surprise of the surgeon, the patient developed no infection and recovered. Souligoux concluded that this unhoped-for success was due to the fact that the ether, by rapid volatilization at body temperature, had disinfected the wound throughout, in that it had penetrated to the uttermost recesses. This, then, was the beginning of the ether treatment, which has been regularly used by Souligoux ever since.

Lethargic Encephalitis

Dr. A. Netter, agrégé professor of the Faculté de médecine de Paris and physician to the hospitals, recently called attention to the reappearance of lethargic encephalitis, a slight epidemic of which in May, 1918, he had already reported. The disease exists at present in epidemic form at Lille and in the vicinity. At Paris, and in the suburbs of Paris, there are more than 100 cases, scattered through various quarters of the city. The disease is characterized mainly by three symptoms: somnolence, paralysis of the cranial nerves (especially the oculomotors), and a more or less accentuated febrile state.

Dr. Achard, professor of the Faculté de médecine de Paris, likewise has had an opportunity of observing several cases of lethargic encephalitis, and he has called attention to certain interesting manifestations that accompany the disease, more especially the possibility of the existence of a meningeal reaction, while two of his patients presented a marked lymphocytosis. These findings have practical diagnostic value, as it is evident that a diagnosis of lethargic encephalitis must not be excluded merely because of a meningeal reaction or a lymphocytosis; nor should one be led into making a diagnosis of tuberculous meningitis, which one might otherwise be tempted to do, at times. Achard also reports the coexistence of a recurrence of lethargic encephalitis with a second attack of influenza. The reports of lethargic encephalitis accompanying influenza are still a subject of much controversy. Without wishing to go so far as to utter an opinion on the question as to whether it is the influenza virus that produces the pathologic changes in the brain or whether these are due to a superadded virus, Achard is nevertheless convinced that a relation exists between lethargic encephalitis and influenza. Moreover, it had been pointed out by Netter in 1918 that a coincidence, at least, existed, in that the conditions favorable to the expansion of the two diseases appeared analogous.

Dr. Pierre Marie, professor of the Faculté de médecine de Paris, states, in this connection, that when one encounters an affection with soporose manifestations, associated with cephalalgia and ocular troubles and accompanied by a pronounced meningeal reaction, one should suspect, first, either tuberculous meningitis, or—in adults more especially—syphilitic meningitis, which is of frequent occurrence and is accompanied by manifestations analogous to those of lethargic encephalitis. Marie added that he had known of distinguished physicians failing to make a proper differential diagnosis under such circumstances, and that he feared such errors would become more frequent now that lethargic encephalitis was so much in vogue.

BELGIUM

LIÉGE, Feb. 20, 1920.

The Cancer Problem

The campaign that has been undertaken in this country to stay the progress of cancer continues to exert a favorable influence on medical studies calculated to throw light on the etiology and the therapeusis of this disease. The cancer commission has announced to the medical profession that, owing to the funds placed at its disposal by the government, it has in its hands the bestowal, annually, of several prizes to be given as awards to the authors of the best works on various questions pertaining to the knowledge of cancerous affections. Aside from questions that can be effectively taken up only in special laboratories, there are many others that rest on observation, pure and simple, and to which, therefore, any observing practitioner can make a useful contribution. To the second class belong such questions as: (1) the geographic or regional distribution of cancer in our country; (2) the conditions favoring the genesis and the further development of cancer; (3) questions of heredity, contagion and epidemicity; (4) the critical examination of various forms of treatment recommended against cancer, and (5) the duration of so-called "cures." The purpose of the commission is not only to favor, to the extent of its resources, every investigation of the true nature of cancer, but also to collect and coordinate the vast amount of authentic but scattered information in regard to the ravages caused in Belgium by cancerous affections and with respect to the best means of combating them. To accomplish these ends, the commission has issued an urgent appeal to the Belgian medical profession, as a whole, to take an active part in the campaign that has been launched.

The Coagulation of Blood in the Serous Cavities

The question of the coagulation of blood discharged into the serous cavities, and especially into the pleural cavity, gave rise to numerous investigations and much discussion during the progress of the war just closed. Delrez *(Archives médicales belges)*, Stassen and Voncken *(Laboratorio)* were agreed that all blood effusions coagulated in a normal manner on account of a slight abrasion of the serous membrane, the wounding of which constituted the first cause of the coagulation, whereas Grégoire and Courcoux *(Coll. Horizon)* thought that blood extravasated into the serous cavities lost the property of coagulating and acquired, on the contrary, anticoagulating properties. At a recent meeting of the Société Belge de Biologie, M. Gratia brought up the question again. He says that ordinarily an aspirated traumatic pleural effusion remains in a fluid state. He maintains that the effusion consists of defibrinated blood which no longer contains any of the elements of coagulation; no fibrinogen, no cytozym, no thrombogen, no thrombin. It contains, however, large quantities of antithrombin, and when heated at a temperature of 56 C. it possesses the property of flocculating the fibrinogen. When an effusion is coagulable in vitro it is either because it contains blood freshly discharged by the wound as the result of an evacuative puncture that was carried too far or because an exudate has been added which did not coagulate in the cavity owing to the protection of the endothelium of the serosa which has cicatrized in the meantime.

Medical Printing

Owing to the annoyances that constantly arise in connection with the ever increasing scarcity of labor and the difficulties of production in general, the Belgian medical federation has formed an incorporated joint-stock company, with a capital of 400,000 francs, for the purpose of founding a medical and

scientific printing establishment, with a view of facilitating the work of printing and publishing for physicians and pharmacists. One of our medical journals, the *Scalpel*, is already being published by the corporation. The corporation expects to provide not only for the editing and publishing of medical works, but will also conduct, in connection, a stationery department, a book-store and a bookbinding department. This innovation is only the natural outgrowth of a movement toward medical reciprocity which is manifesting itself in all the large cities of the country. Since the signing of the armistice, in order to combat the high cost of living, Brussels, Antwerp and Liége have established cooperative societies, which handle not only groceries and foodstuffs, but also clothing and other articles of prime necessity. These cooperative societies are beginning to get into full working order.

Cancer of the Prostate Treated by Radiotherapy

Dr. Le Clerc Dandoy has communicated to the Société belge d'urologie his observations of a case of cancer of the prostate, in which radium exerted a favorable effect. The rarety of the case makes it worthy of mention. Three exposures to the roentgen ray and six applications of radium, by the prostatic urethra and by the rectum as well, all within three hours, was the technic employed. The symptoms improved rapidly. The pain which was unbearable subsided almost completely. The gradual disappearance of the tumor could be followed by rectal palpation. Strange to relate, running parallel with the breaking up of the tumor, the general health of the patient was much affected. Fever, oliguri and delirium were present, but gradually disappeared. This parallelism between the regression of the cancerous tissue and the appearance of general symptoms was maintained up to the end of the treatment.

A National Congress for the Study of Questions Pertaining to Disabled Soldiers and Sailors

Now that the normal affairs of life have been completely resumed, and now that the situation of all those who returned, after the war, to their abandoned firesides has been stabilized, the solution of all questions pertaining to disabled soldiers and sailors should be brought about with as little delay as possible. All those who had been called on to devote their time and energies to these questions were recently summoned by the minister of war to meet together in a national congress, to which the Association des Invalides was also asked to send delegates. The reports presented to the congress emphasized the necessity of close collaboration between the surgeon, the physiotherapist, the reeducator and the prosthetist. The value of collaboration between various specialists had been brought out by the war in all branches of medicine. In the case of disabled soldiers and sailors, more than anywhere else, collaboration was needed; in fact, it was indispensable. Unity of treatment should be everywhere present, from the time the men are injured, right up to the time when, provided with such prosthetic apparatus as they may need, they leave the school of reeducation, where they have learned to make ready use of prosthetic appliances and where they have been trained, if necessary, for a trade or profession. Dr. Hendrix gave an outline of the great work that had been accomplished by the Belgian Army Medical Corps at the famous center Bonsecours-lez-Rouen, and also described the newly established center at Woluwe (Brussels) to which all the services formerly at Bonsecours have been transferred. The services at Bonsecours were known to all the allies, and they served as models for all who wished to familiarize themselves with the organization and practical workings of reeducation centers.

In this connection a new question has arisen. Shall the state as such continue to manufacture the prosthetic appliances for the crippled and disabled? Or shall production be decentralized and private industries be permitted to develop and manufacture orthopedic equipment? This question, being one of great present interest, provoked a lively discussion, and it did not take the members of the congress long to reach a common agreement as to the desiderata required in the premises. It was agreed that, in order to assure every guaranty of safety and quality, the manufacture of prosthetic apparatus for the use of disabled men should be entrusted solely to such manufacturers as would accept medical direction and control. It was further agreed that the state could best secure a full and complete guaranty as to quality of workmanship by turning over to the Oeuvre nationale des invalides, and to it alone, the necessary funds for the equipment with, and for the upkeep and the renewal of prosthetic appliances, etc., required by disabled soldiers and sailors. The manner of using such funds should be left entirely to the Oeuvre nationale des invalides, which would act through a mixed commission appointed to study into the details of manufacture of the required equipment and into the best methods of regulating the matter of upkeep and renewal of apparatus. This commission would be composed of army experts, members of the Belgian Red Cross, delegates of the Belgian orthopedic industry, and representatives of the disabled soldiers and sailors. In order to furnish a concrete exhibit of the progress that is being made daily in the manufacture of prosthetic appliances, it was proposed that a museum be established which should contain samples of all prosthetic appliances used by disabled soldiers and sailors. The congress also took up the study of certain financial questions pertaining to the disabled men. It considered especially the matter of government aid, which has been proposed, to assist them in the construction of simple dwellings, in the securing of small garden tracts, the opening of small shops and the purchasing of equipment in line with their profession.

MEXICO CITY

Feb. 28, 1920.

The Academy of Medicine

During the recent sessions of this association the following subjects have been discussed: Dr. Godoy Alvarez read an interesting paper on the symptomatology, and the medical and surgical treatment of the common duct obstructions, which was very widely discussed and served to bring to the fore again the virtues of the springs of Tehuacan in lithiasis. Dr. B. Vasconcelos reported a case of probable syphilitic reinfection following treatment with intravenous injections of arsphenamin and intramuscular injections of mercury. The case was in a young man who about the middle of 1917 had an indurated chancre, the syphilitic character of which was demonstrated by the presence of spirochetes. The patient had no secondary manifestations and received six injections of arsphenamin and about ten of mercurial oil. In December, 1919, after exposing himself again and after an incubation period estimated at fourteen days, he presented a new chancre at a different site on the penis, without any bubo. The spirochete was again isolated from this chancre and the Wassermann reaction was very strongly positive in the blood serum. It was not possible to persuade the patient to have a Wassermann made between the appearance of the first and second chancre; so it is not known whether the reaction was constantly negative, as should be the case before a patient is pronounced definitely cured. For this reason and because of absence of a bubo (which was lacking also in the first instance) it cannot be stated with certainty that it is one more case of reinfection to add to the large number collected by Emery in his recent pamphlet, "Traitement abortif de la syphilis" (Paris, Vigot Frères, 1914), and those observed more recently, such as that of Schamberg (described in THE JOURNAL). Another communication on syphilography condemns with strong reasons, at least provisionally, the use of Query's serum, which is considered as lacking sufficient scientific basis and should be mistrusted because of the silence maintained about it by all well-known French syphilologists.

Child Welfare Congress

Owing to the initiative of Sr. Palavicini, editor of a local newspaper, the first Mexican child welfare congress is to be held in September, 1920. Not only physicians but all persons interested in social matters are invited to participate. The congress will be divided into sections which will be devoted to eugenics, infant hygiene, medical and surgical pediatrics, pedagogy, and legislation. The congress will be presided over by Sr. Palavicini and among the members of the organizing committee are Sr. E. Chávez, former undersecretary of public instruction, and Drs. Rafael Carrillo, Roque Macouzet, and others. The secretaries of the committee on organization are Drs. Luis S. Viramontes and S. Uribe Rivera, whose address is: Apartado postal No. 909, Mexico City, Mexico.

The Study of Typhus Fever

The Comisión Central para el Estudio del Tabardillo has received a subsidy from the federal government amounting to 25,000 *pesos* (about $12,500) for the present fiscal year, which will be expended subject to the discretion of the dean of the National University. This gift from the authorities has impressed physicians very favorably and it is hoped that it may yield some positive results, especially in view of the fact that Noguchi has offered to aid the commission with his advice in regard to parasitologic investigations.

Marriages

ABRAHAM I. WEINSTEIN, Richmond, Va., to Miss Virginia Elizabeth May of Charleston, S. C., February 1.

EARL C. WATERBURY, Newburgh, N. Y., to Miss Elmina Elizabeth Benoit of Ottawa, Ont., February 4.

HARVEY S. KOONS, New Castle, Ind., to Miss Izetta Harrigan of Bloomington, Ind., January 20.

EFFIE LOUISE ABBOTT to Mr. Gilbert Wilson Morton, both of Jacksonville, Ill., February 21.

ISAO HIRATA, New Haven, Conn., to Miss Misao Kawasaki of Cincinnati, February 18.

Deaths

Lewis E. Lemen ● Denver; Washington University, St. Louis, 1871; aged 70; once president of the Colorado State Medical Society; clinical professor of surgery in Denver and Gross College of Medicine; surgeon to the Union Pacific and Denver, Texas and Gulf railroads; president of the Denver school board for twelve years; a member of the state board of health, a member of the staff of St. Joseph's and Mercy hospitals; consulting surgeon to St. Luke's Hospital; health commissioner of Denver in 1893 and 1894; president of the Board of Commissioners of the Colorado Insane Asylum; died February 17, from aneurysm of the aorta.

Edward Geary Tuttle, New York; New York Homeopathic Medical College, New York, 1889; aged 57; emeritus professor of gynecology in his alma mater; attending gynecologist to Flower Hospital; attending surgeon to the Yonkers Homeopathic Hospital and Maternity; consulting surgeon to St. Mary's Hospital, Passaic, N. J.; Middletown State Homeopathic, White Plains, and White Plains Hospital, New York, and Ann May Memorial Hospital, Asbury Park, N. J.; died, February 29.

John Dean Hall, Colonel, M. C., U. S. Army, retired, Washington, D. C.; College of Physicians and Surgeons in the City of New York, 1867; aged 77; who entered the Army as assistant surgeon, November 16, 1868; was promoted to captain in 1871, to major in 1889, to lieutenant colonel and deputy surgeon general in 1901, and to colonel and assistant surgeon general in 1903, and was retired by operation of law, March 18, 1906, on attaining the age of 64; died, February 25.

Harry Rodgers Lemen, Alton, Ill.; Washington University, St. Louis, 1893; aged 49; a member of the Illinois State Medical Society; Captain M. R. C., U. S. Army; a veteran of the Spanish-American War; later serving in the Philippine Islands, in the Boxer Rebellion in China, and in the Russo-Japanese War; while driving his automobile over a grade crossing in Alton, February 21, was struck by a train and instantly killed.

Albert Weil ● Peoria, Ill.; Rush Medical College, 1893; aged 55; a member of the staff of the Deaconess and Proctor hospitals, also a druggist; county physician of Peoria County for sixteen years; once health commissioner of Peoria; local surgeon of the Chicago and Alton, Burlington, Peoria and Pekin Terminal and Illinois Traction systems; died, February 20, from heart disease.

Ver Nooy Wayland Weed ● Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1900; aged 42; associate surgeon to the Bushwick, Jamaica and Swedish hospitals, and a member of the staff of the Consumptives' Home; died in the Neurological Hospital, Manhattan, February 26, from cerebral hemorrhage.

John Oliver Sandercook, Oklahoma City, Okla.; St. Louis, 1871; aged 70; contract surgeon U. S. Army, with service in Indian campaigns under Generals Merritt and Crook; superintendent of the Board of Health of Canadian County, Okla., from 1902 to 1908; died in Denver, February 6, from pneumonia.

Alonzo Festus Burnham ● Quincy, Ill.; Rush Medical College, 1878; aged 66; for many years connected with the state hospitals at Jacksonville and Bartonville, and more recently physician at the Old Soldiers and Sailors' Home, Quincy; died February 20, from bronchopneumonia.

Augustus F. G. Zurhorst, Oakfield, N. Y.; Western Reserve University, Cleveland, 1869; aged 72; a member of the Medical Society of the State of New York; a veteran of the Civil War; once supervisor and postmaster of Oakfield from 1914 to 1919; died, February 21, from peritonitis.

Livingston Spraker Hinckley ● Newark, N. J.; Bellevue Hospital Medical College, 1878; aged 64; for seventeen years medical superintendent of Essex County Hospital for the Insane, Newark; died in St. Barnabas Hospital, Newark, February 22, from pneumonia.

John Carroll McGinnis ● Martin's Ferry, Ohio; Miami Medical College, Cincinnati, 1901; aged 41; who served during the World War as Captain, M. C., U. S. Army, and was discharged, March 20, 1919; died in the Cincinnati Sanatorium, February 21.

David Gildner, Rockwood, Pa.; University of Wooster, Cleveland, 1883; aged 71; disappeared mysteriously, Nov. 8, 1919, and is believed to have been murdered. His dismembered body was found encased in ice in a swamp near Searight, Pa., February 15.

Paul Henry Piper ● Detroit; University of Michigan, Ann Arbor, 1918; aged 28; an intern in St. Mary's Hospital, Detroit; while delirious from pneumonia, leaped from a third story window at the hospital, February 14, and was instantly killed.

Charles William Hadley, Columbus, Ohio; Ohio State University, Columbus, 1912; aged 36; a member of the Ohio State Medical Association; instructor in obstetrics in his alma mater; died, February 20, from pneumonia following influenza.

Thurman Ross Beaver, Akron, Ohio; Indiana University, Bloomington and Indianapolis, 1910; aged 31; captain, M. R. C., U. S. Army, during the World War, and discharged, June 21, 1919; died, February 13, from pneumonia following influenza.

Alfred Hugh Fowler, Chicago; Rush Medical College, 1904; aged 42; a member of the Illinois State Medical Society; died in Wesley Memorial Hospital, Chicago, March 3, from chronic nephritis, complicated with cholecystitis and hepatitis.

Henly W. Allen, Boulder, Colo.; College of Physicians and Surgeons, Keokuk, Iowa, 1867; aged 82; a member of the Colorado State Medical Society; formerly president of the board of education of Boulder; also a druggist; died, February 14.

George W. Bean, Kansas City, Kan.; Eclectic Medical University, Kansas City, Mo., 1902; aged 78; a veteran of the Civil War; also a Presbyterian clergyman; died in the Soldiers' Home Hospital, Leavenworth, Kan., February 16.

Howard A. Wilson, Woodbury, N. J.; Jefferson Medical College, 1884; aged 60; a member of the Medical Society of the State of New Jersey; once coroner of Gloucester County; died in his office, February 21, from cerebral hemorrhage.

Frederick M. Brougher, Belen, Miss.; Memphis, Tenn., Hospital Medical College, 1900; aged 62; a member of the Mississippi State Medical Association; health officer of Quitman County; died, February 14, from heart disease.

Wiley A. Jones, Cantril, Iowa (license, Iowa, practitioner, 1887); aged 78; a practitioner for fifty-three years; once mayor of Cantril; surgeon of the Tenth Iowa Volunteer Infantry during the Civil War; died, February 17.

Thomas Rutledge Bass, Lafayette, Ind.; Indiana University, Bloomington and Indianapolis, 1909; aged 36; surgeon in chief of the Indiana State Soldiers' Home Hospital, Lafayette; died, February 15, from pneumonia.

Wallace Miles Knowlton, Newton, Mass.; University of Vermont, Burlington, 1880; a member of the Massachusetts Medical Society and of the American Medico-Psychological Association; died in Boston, February 6.

Joseph M. Finarty, Knoxville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 72; a member of the Iowa State Medical Society; a veteran of the Civil War; died, February 16, from angina pectoris.

Moses Zeller, Mt. Vernon, N. Y.; Fordham University, New York, 1919; aged 26; an intern in the Lincoln Hospital and Home, the Bronx; died in that institution, February 27, from encephalitis lethargica.

Elisha Price Merritt ● Atlanta, Ga.; Atlanta (Ga.) School of Medicine, 1912; aged 34; secretary of the Fulton County

● Indicates "Fellow" of the American Medical Association.

Medical Society; a specialist in genito-urinary diseases; died, February 15, from pneumonia.

Charles William Weaver, Grand Rapids, Mich.; Fort Wayne (Ind.) College of Medicine, 1887; aged 55; died in the Detention Hospital, Grand Rapids, February 16, from poisoning by denatured alcohol.

Louis A. Turnbull, St. Louis; Missouri Medical College, St. Louis, 1888; aged 55; for many years a resident of Mexico; died in the Alexian Brothers' Hospital, St. Louis, February 17, from pneumonia.

George Washington Brown, Pratt City, Ala.; Atlanta (Ga.) Medical College, 1877; aged 72; a member of the Medical Association of the State of Alabama; died at an infirmary in Birmingham, February 15.

Harvey George Alexander, Deal Island, Md.; University of Maryland, Baltimore, 1891; aged 50; a member of the Medical and Chirurgical Faculty of Maryland; died, February 12, from influenza.

Harvey G. Hieber ● Los Angeles; Northwestern University Medical School, Chicago, 1903; aged 40; formerly of Thief River Falls, Minn.; died in Monrovia, Calif., January 17, from tuberculosis.

Howard Miles Jump ● Kelley's Island, Ohio; Toledo (Ohio) Medical College, 1895; aged 52; physician of Kelley's Island for two years; died, February 21, from pneumonia following influenza.

James Evans Kendrick, Lyngrne, Ala.; University of Alabama, Mobile, 1869; aged [illegible]; a member of the Medical Association of the State of Alabama; a Confederate veteran; died, February 15.

John E. Douglass, Cincinnati; Medical College of Ohio, Cincinnati, 1883; aged 59; medical director of the Western and Southern Life Insurance Company for thirty-two years; died, February 14.

John Waldo Booth, Binghamton, N. Y.; Northwestern University Medical School, Chicago; 1870; aged 84; a member of the Medical Society of the State of New York; died, February 14.

Edward Dormenio Hall, Meriden, Conn.; Harvard University Medical School, 1873; aged 68; a member of the Connecticut State Medical Society; died, February 19, from pneumonia.

Michael F. Murray, Chicago; Rush Medical College, 1891; aged 59; a member of the Illinois State Medical Society; died, March 3, from gangrene of the foot following arteritis obliterans.

Frank M. Brundage, Conyngham, Pa.; Jefferson Medical College, 1874; aged 68; for eight years United States consul at Aix la Chapelle, Germany; died in Scranton, Pa., February 21.

Walter Meeker Crean, Clark's Summit, Pa.; University of the City of New York, 1893; aged 55; a member of the Medical Society of the State of Pennsylvania; died, February 17.

Nathaniel George McManus, Philadelphia; University of Pennsylvania, Philadelphia, 1901; aged 42; died in St. Joseph's Hospital, Philadelphia, February 18, from heart disease.

Peleg Francis Walker, Providence, R. I.; Boston University, 1881; aged 60; for thirty years a member of the school committee of Providence; died, February 27, from heart disease.

Guy Marshall McDowell, Bay City, Mich.; Ohio Medical University, Columbus, 1906; aged 39; a member of the Michigan State Medical Society; died in Detroit, February 16.

William Adolph Myers, Brooklyn; University of the City of New York, 1888; aged 53; one of the founders of the Bushwick Hospital; died, February 16, from heart disease.

David Hamilton Lewis, Washington, Pa.; Jefferson Medical College, 1877; aged 69; died in St. Francis' Hospital, Pittsburgh, February 17, the result of a nervous breakdown.

Matthew N. Alexander, Pleasant Shade, Tenn.; University of Tennessee, Nashville, 1896; aged 61; a member of the Tennessee State Medical Association; died, February 10.

Jokshan Freymann, Kansas City, Mo.; Cincinnati College of Medicine and Surgery, 1877; aged 73; a member of the Missouri State Medical Association; died, February 13.

Sharps M. Snyder, Greenwich, N. J.; University of Pennsylvania, Philadelphia, 1865; aged 78; died about January 24.

Charles Zuppann, Ballwin, Mo.; Rush Medical College, 1877; aged 57; a member of the Missouri State Medical Association; died, February 15, from heart disease.

John Blake McKay, Marion, Ind.; Trinity Medical College, Toronto, 1904; aged 47; died in the Grant County Hospital, Marion, February 14, from pneumonia.

Robert S. Knode, Omaha; Miami Medical College, Cincinnati, 1867; aged 77; formerly secretary of the American Rhinological Association; died, January 26.

William C. Hodges, Chesterville, Ohio; Columbus, Ohio, Medical College, 1881; Homeopathic Hospital College, Cleveland, 1892; aged 61; died, February 15.

Alfred Walton, Philadelphia; Harvard University Medical School, 1879; aged 62; died at his country home, Woodbury, N. J., February 22, from heart disease.

John Havemeyer Daniels ● Buffalo; Niagara University, Buffalo, 1895; aged 51; died in Buffalo General Hospital, February 13, from cerebral hemorrhage.

Thomas Walter Scott ● Rushville, Ill.; Missouri Medical College, St. Louis, 1884; aged 71; once mayor of Rushville; died, February 19, from heart disease.

Benjamin Franklin Makepeace ● Farmington, Me.; University of the City of New York, 1887; aged 60; died February 16, from lobar pneumonia.

Edward C. Pearse, Braddock, Pa.; New York Homeopathic Medical College, New York City, 1900; aged 45; died, February 14, from pneumonia.

Frederick Kenner Fisher ● Galveston, Texas; Tulane University, New Orleans, 1873; aged 67; died, February 11, from valvulus heart disease.

Frank Hamilton Whittemore ● New Haven, Conn.; Bellevue Hospital Medical College, 1874; aged 65; died, February 26, from pneumonia.

Milton Keim, Philadelphia; University of Pennsylvania, Philadelphia, 1872; aged 74; a graduate in dentistry in 1866; died, February 24.

John Wellington Moriarty, Churubusco, N. Y.; University of Vermont, Burlington, 1891; aged 62; died, February 9, from pneumonia.

Mary Johnson Cochran, Chester, Pa.; Homeopathic Hospital College, Cleveland, 1889; died, February 12, from pneumonia.

Jennie Holman Griffin, Troy, N. Y.; Cleveland Medical College, Homeopathic, 1895; aged 52; died, February 17, from pneumonia.

Frederick William Ritter ● Tannersville, Pa.; Jefferson Medical College, 1901; aged 52; died, February 23, from pneumonia.

George W. Bahn ● Spring Grove, Pa.; University of Maryland, Baltimore, 1881; aged 63; died, February 13, from pneumonia.

Belle Ogden Constant, Chicago; Hahnemann Medical College, Chicago, 1917; aged 49; died, February 19, from osteosarcoma.

Mark Rowe, Paris, Ill.; Eclectic Medical Institute, Cincinnati, 1866; aged 85; died, February 14, from bronchitis.

Giacomo Abraham Senigaglia ● Nyack, N. Y.; Cornell University, New York, 1909; aged 31; died, February 24.

Bernard Daly, Lakeview, Ore.; University of Louisville, Ky., 1887; aged 61; died in Livermore, Calif., January 26.

Frank Amos Rhoads, Pittsburgh; College of Physicians and Surgeons, Baltimore, 1882; aged 60; died, February 6.

Herbert Daniel Dieterle, Ann Arbor, Mich.; University of Michigan, Ann Arbor, 1918; aged 26; died, February 26.

Frank Edward Fletcher ● Ashland, Wis.; University of Michigan, Ann Arbor, 1865; aged 76; died, February 18.

Clarence R. Seeley, Attica, N. Y.; University of Buffalo, N. Y., 1873; aged 71; died in Miami, Fla., February 6.

J. Rodley Rundlett, Delavan, Wis.; Rush Medical College, 1868; aged 74; died, February 8, from septicemia.

Frank Warren Merritt, Jay, Me.; University of Vermont, Burlington, 1889; aged 62; died, January 25.

Fred Swartzlander, Omaha; Jefferson Medical College, 1872; aged 72; died, February 23.

Ira Hersia Leslie, Verona, Wis.; Rush Medical College, 1887; aged 58; died, January 8.

Edwin B. Reed, Asbury Park, N. J.; Jefferson Medical College, 1884; died, March 1.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

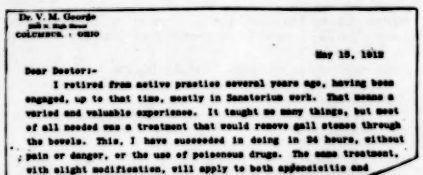
HEPATOLA

A physician in Saskatoon, Saskatchewan, sends The Journal an advertisement from a local paper, reading:

OPERATIONS UNNECESSARY

HEPATOLA removes Gall Stones, corrects Appendicitis in 24 hours without pain. Registered under Pure Food and Drug Acts. $6.00.

Profitable quackery dies hard. In the United States "Hepatola" was declared a fraud by the federal authorities in 1917 and the Hepatola Company was denied the use of the United States mails. Hepatola was claimed as the discovery of one "Dr. V. M. George" of Columbus, Ohio. So far as The Journal's records show, and they are the most complete extant and based on official data, V. M. George is not, and never has been, licensed to practice medicine. In 1912 George was sending out letters to physicians stating that he had "retired from active practice several years ago" and that the "varied and valuable experience" that he had obtained while in practice had taught him "many things." Especially had it resulted in his discovering "a treatment



Dr. V. M. George
[illegible]
COLUMBUS, : OHIO

May 15, 1912

Dear Doctor:-

I retired from active practice several years ago, having been engaged, up to that time, mostly in Sanatorium work. That means a varied and valuable experience. It taught me many things, but most of all needed was a treatment that would remove gall stones through the bowels. This, I have succeeded in doing in 24 hours, without pain or danger, or the use of poisonous drugs. The same treatment, with slight modification, will apply to both appendicitis and Typhlitis. I make no exception to the claims of this treat-

[illegible]

Reproduction (greatly reduced) of the letter head and opening statements made by V. M. George in 1912 when he attempted to interest physicians in his "cure" for gallstones.

that would remove gallstones . . . in twenty-four hours without pain or danger or the use of poisonous drugs." Further, "the same treatment with slight modification, will apply to both appendicitis and typhlitis." George's proposition was that physicians, instead of sending their gallstone patients to the hospital for operation, should let him treat them by his nonsurgical method. Apparently, George was not very sanguine of his venture for he said:

"The knife treatment has apparently so ossified any nascent ambition because of the hospital fees, that the average doctor is fearful to even think of any other modus operandi, lest it might destroy the very source of his existence."

In order, presumably, to fight the devil with his own weapons—and incidentally reap the reward of virtue—George suggested that

". . . you permit me to work in harmony with you and give you the same percentage of fees as is given by the hospitals."

At the same time that V. M. George was attempting to interest the medical profession under his own name—an unsuccessful attempt as it proved—he was, under the name "Hepatola Company" appealing to the public to take Hepatola for the cure of gallstones and appendicitis. In fact, he also recommended it to persons who were perfectly well. The slogan of the Hepatola concern was "Avoid the knife." At the bottom of each page, set off from the reading matter and printed in italics one read:

"Avoid the knife—and save money"
"Avoid the knife—save your appendix"
"Avoid the knife—honeycombed with danger"
"Avoid the knife—everything for gain"

And then there were these warnings:

"When you once notice a suspicious pain in the right side, radiating to the back, that spells trouble. If you consult your physician, he will tell you right away, gall stones, appendicitis, or serious abdominal trouble. That means an operation. Don't entertain it for a minute, investigate Hepatola."

"Some fine day there is going to be an end to this promiscuous cutting by the doctors. The law protects them, and if you happen to die that closes the chapter—for the doctor. Not for the stricken family, however, who might have been relieved had they known of 'Hepatola.'"

The postoffice authorities finally got around to Mr. George and his Hepatola Company. Hepatola itself was turned over to the federal chemists for analysis and, as might have been expected, was found to be the same old fake gallstone trick—that of giving the victim a large dose of some bland oil and following it up with a saline. The soapy concretions that are voided following this dosing, are the "gallstones" which the "treatment" removes. Here is what the federal chemists reported:

"Powder: This is an ordinary seidlitz powder, containing rochelle salts, sodium bi-carbonate and tartaric acid.

"Liquid: This is an ordinary olive oil colored with a coal tar dye and slightly flavored with peppermint."

The same old humbug with ingredients essentially identical with "Fruitola" and "Mayr's Wonderful Stomach Remedy." Hepatola was a mail-order proposition and thus laid itself open to action on the part of the postoffice authorities. Fruitola and Mayr's Stomach Remedy, although, in the past, sold under claims just as ridiculous have always been handled through the "recognized channels" of the retail drug trade. They are still doing business; the Hepatola Company has been debarred from the use of the United States mails. The Canadian authorities might well investigate this Saskatoon industry. Possibly such an investigation would save, if not lives, at least money, for our northern neighbors.

Correspondence

SARCOMA OF THE UTERUS AND ITS RELATION TO ROENTGEN THERAPY*

To the Editor:—In a paper published in the *American Journal of Obstetrics and Diseases of Women and Children* (March, 1914) it was pointed out that the occurrence of sarcomas or of sarcomatous change in uterine fibromyomas was relatively frequent.

A careful study of 250 cases was made at that time, and twelve sarcomas were found that had been removed by operation. In only two instances was the diagnosis made, and then only at the time of operation. It was shown that symptomatically these malignant cases as a rule offered no distinctive diagnostic criteria, and for that reason it was difficult to differentiate clinically the malignant from the nonmalignant cases. In other words, it was practically impossible to say definitely that a case supposedly a fibromyoma and therefore amenable to roentgen-ray therapy was not really harboring a malignant tumor. Two of the patients after operation developed extensive recurrences and died; all the others apparently did well.

In view of the frequency of these malignant cases and because of the difficulty of preoperative diagnosis, it was urged that the roentgen-ray treatment of fibroid, especially about the period of the menopause, was hazardous.

In a subsequent study of 290 additional cases there were found ten sarcomas, making a total of 540 cases with a percentage of 4.07 sarcomas. These figures, which embody the results of a study of the material in a large metropolitan hospital, represent a frequency that cannot be set aside arbitrarily. In view of these figures, what must be our attitude toward the roentgen treatment of uterine fibroids that are unassociated with the usual diagnosticable compli-

*Work done under tenure of a George Blumenthal, Jr., fellowship.

cations, such as diseased adnexa, ovarian cysts, or other tumor conditions of the ovaries or tubes?

That the sarcomas occurring in fibroids are malignant there can be no doubt; cases in my own series and the many published reports show that they recur after operation, metastasize and lead ultimately to the death of the patient. On such a basis and because of their inaccessibility, one would be inclined to say that it is temporizing or worse to irradiate a patient who may have a malignant tumor.

The literature on the roentgen treatment of fibroids now teems with statistics, and the results are the quoted observations over long periods of time. To my knowledge there are no cases in the literature of fibroids in which, after or during the roentgen treatment of fibroids, a malignant condition has developed locally. Nor are there any reported cases that during the roentgen-ray treatment or subsequently showed metastatic deposits from a primary uterine tumor. These reports must be accepted as showing that a series of cases, now mounting into thousands, undoubtedly with undiagnosed sarcomas among them, have been irradiated and cured or at least rendered innocuous, for the period of observation. It cannot be argued that the bad results have not been reported, and we must therefore alter our point of view as regards the roentgen-ray treatment of fibroids. It must be stated that, in view of the frequency of sarcomas in the cases in which operation is performed, the same percentage must occur in the cases in which irradiation has been employed. If after irradiation and prolonged periods of observation no malignancy develops in the uterus and no metastases occur, then we are bound to say not only that the roentgen ray causes a beneficent result in the treatment of fibroids but also that in those cases complicated by sarcomatous change or those cases of sarcoma not diagnosed, the same arrest in growth and retrogression of size and disappearance of symptoms takes place as in the ordinary fibroid. Whether or not subsequent observation will show that these conclusions are erroneous one cannot say; but at least if the reports of the roentgenotherapist are comprehensive, then roentgen-ray therapy has a decided place in the treatment of fibroids irrespective of whether or not the diagnosis of sarcoma or of sarcomatous degeneration was overlooked.

In a previous paper it was stated that the sarcomatous elements may not be giving rise to any special symptoms, and that thus temporarily one is lulled into a feeling of false security. It was contended that until it was proved by a long period of observation that the roentgen ray might have a curative effect on uterine sarcomas, it was unfair to expose a patient to the unnecessary risk and delay that the roentgen treatment in those cases would entail. It seems that such a period of observation has now passed and that we must realize that the roentgen ray, when applied in the approved method to uterine fibroids whether or not complicated by sarcoma, is productive of favorable results in properly selected cases.

S. H. GEIST, M.D., New York.
Adjunct Gynecologist and Associate in Surgical Pathology, Mount Sinai Hospital.

REVISION OF THE PHARMACOPEIA

To the Editor:—Your recent announcement concerning the coming meeting of the U. S. Pharmacopeial Convention (THE JOURNAL, Feb. 28, 1920, p. 613) is most timely. It is important that every medical society and college privileged to send delegates to the convention should do so. The Pharmacopeia should furnish standards of purity and strength of drugs needed by the profession. It also should tell how to make standard preparations of them.

Drugs that are useful are those which possess physiologic or pathologic action. Unfortunately, the Pharmacopeia still contains some that possess neither. It is still more encumbered by a multiplicity of preparations that must now be learned by pharmacists and physicians. Two preparations, or in some instances three or four of each drug, are all that are needed. The Pharmacopeia should point out these best preparations and necessary drugs; others should be omitted.

The latest revision of the Pharmacopeia was about five years in making. If cut to proper proportions, the revision could be made much more promptly, for it takes as long to prepare the description of unnecessary and superfluous drugs and preparations as of necessary ones. It is so important for medical men to possess standards for the drugs and preparations which they use that they must take interest in the revising of the Pharmacopeia. This should not be left altogether to retail or manufacturing druggists and, above all, the manufacturers of trade-marked and proprietary preparations.

I hope that you will continue to agitate this subject until the medical profession takes the active part in the affairs of the Pharmacopeia which it should.

N. S. DAVIS, M.D., Pasadena, Calif.

"WHAT IS SO-CALLED SCIENTIFIC DRINK CONTROL?"

To the Editor:—Your editorial "What Is So-Called Scientific Drink Control?" in THE JOURNAL, February 14, is presented at a time when this question is uppermost in the minds of many thoughtful students, and when the question as to what is an intoxicating beverage is being submitted for a correct answer to the medical profession. The national prohibition act has raised the question, What is an intoxicating beverage? It would appear that the term "intoxicating" is used in the ordinary, reasonable and accepted sense, and is synonymous with drunkenness. Doubtless this question will finally be officially determined as a result of scientific tests made by competent medical authorities. Only the other day the New York State Bureau of Health was requested by the legislature of that state to study this phase of the alcohol question and to report its findings, in order to guide the legislature in arriving at a conclusion as to what is an intoxicating beverage. As you rightly say, it is remarkable that, while much has been written with reference to alcohol, there is yet much to learn with reference to its action. This would appear to apply especially to alcohol in dilute solutions and to alcohol when it appears in combination with other substances, as in the malt beverages. Practically all the available data of experimental work done prior to 1919 refer to relatively strong solutions of alcohol.

That the effects of different doses of alcohol may yield different results at times is referred to by Dodge and Benedict, from whose work I quote:

> In addition to the main experimental precautions we systematically varied the alcohol dose. This was done for the following reasons. In the first place, it is a fact that different doses of some drugs produce quite different physiological effects amounting even to a change of sign. That this is true of alcohol seemed to be indicated in more than one experimental investigation.

When one considers the complex chemistry of beer, there is reason for believing that its alcohol is modified and that for this reason beer with a low alcohol content is rendered nonintoxicating. Recent experiments have been conducted in this country to determine whether or not a beverage with an alcohol content of 2.75 per cent. by weight of alcohol is intoxicating. As a result, the conclusion was reached that malt beverages with an alcohol content of 2.75 per cent. by weight are not intoxicating as that term is ordinarily used, and the reasons assigned for this are in the main in accord with the work of Mellanby which you refer to. These were published in the "Hearings before the Subcommittee of the Committee of the Judiciary of the United States Senate, 66th Congress, First Session on the Bills to Prohibit the Liquor Traffic, and to Provide for the Enforcement of such Prohibition and the War Prohibition Act." Part 3. Government Printing Office Washington, D. C.

While it is, of course, true that these experiments have dealt with a limited number of subjects, and it is also true, as you state, that nowadays scientific experiments are being conducted on a national scale, it is also a fact that for some years past there has been conducted a scientific experiment on a national scale with reference to the effects of malt beverages of low alcoholic content. I refer to the people of

Norway, who are held up to us as models of righteousness, thrift and sobriety, and among whom there is sold, with practically no restrictions whatsoever, beer with an alcoholic content of 2.75 per cent. by weight.

CHARLES A. ROSEWATER, M.D., Newark, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NERVE AND SPINAL CORD COMPLICATIONS OF MALARIA

To the Editor:—What are the principal nerve or cord lesions following malarial fever. I believe I read a paper in THE JOURNAL some time ago, but I cannot recall it at present.

SAMUEL GINSBURG, M.D., Buffalo.

ANSWER.—Among the rarer complications of malarial fever which have been observed are: paraplegia, which may be due to a peripheral neuritis or to changes in the spinal cord; hemiplegia, which may occur in the pernicious comatose form or, occasionally, at the very height of a paroxysm; spinal irritation; paresis; meningitis; psychoses; aphasia; acute ataxia, and, in a few cases, symptoms of disseminated sclerosis.

REQUEST FOR MATERIAL TO AID MALARIA INVESTIGATION

To the Editor:—The undersigned would like to enter into communication with physicians who may be located in malarial districts, in reference to securing postmortem material from fatal cases of malaria, for purposes of investigation. Any aid that may be afforded us in this connection we should deeply appreciate.

C. E. SIMON, M.D.; R. W. HEGNER, PH.D., Baltimore.
School of Hygiene and Public Health, The Johns Hopkins University.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. Edgar P. Copeland, the Rockingham, Washington.

FLORIDA: Jacksonville, March 16. Sec., Homeo. Bd., Dr. Geo. A. Davis, East Port.

IDAHO: Boise, April 6. Commissioner, Hon. Robert A. Jones, Boise.

IOWA: Iowa City, March 29-31. Sec., Dr. Guilford H. Sumner, Capitol Building, Des Moines.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thos. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, April 13-14. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Byron U. Richards, State House, Providence.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

New Jersey Reciprocity Report

Dr. Alexander Macalister, secretary of the New Jersey State Board of Medical Examiners, reports that 68 candidates were licensed by reciprocity and 2 candidates were licensed on presentation of a certificate from the National Board of Medical Examiners from July 3 to Nov. 8, 1919. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1913)	Dist. Colum.
Chicago College of Medicine and Surgery		(1915)	Illinois
Hahnemann Medical College and Hospital, Chicago		(1915)	Illinois
University of Louisville		(1908)	Illinois
Bowdoin Medical School		(1915)	Maine
University of Maryland		(1914)	Maine, (1917) W. Virginia
Harvard University		(1899)	New Hamp.
Tufts College Medical School (1916)			Massachusetts. Vermont.
University of Michigan Homeopathic Medical School		(1910)	Kentucky
Albany Medical College		(1913), (1916), (1917)	New York
Columbia University		(1914, 2), (1915), (1917, 2)	New York
Cornell University		(1915), (1918)	New York
Fordham University		(1915), (1917), (1918, 2)	New York
L. I. Coll. Hos. (1893), (1907), (1910), (1914), (1918, 2)			New York
New York Homeopathic Medical College and Flower Hospital (1902), (1914), New York, (1915), (1916), (1918, 2)			Connecticut New York
New York Med. Coll. and Hosp. for Women		(1907)	New York
University and Bellevue Hospital Medical College		(1909), (1917), (1918, 3)	New York
University of Buffalo		(1915)	New York
Starling-Ohio Medical College		(1908)	Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1899), (1906)	New York Penna.
Jefferson Medical College, (1904) North Carolina, Pennsylvania, (1905) Pennsylvania, (1910) North Dakota, Pennsylvania, (1911) Pennsylvania.			
Medico-Chirurgical College of Philadelphia (1912), (1913)			Penna.
University of Pennsylvania (1899) Georgia, Pennsylvania, (1917) New York, (1918) New York, Pennsylvania.			
Woman's Medical College of Penna.		(1910), (1914)	Penna.
University of Tennessee		(1917)	Tennessee
University of the South		(1906)	*Philip. Isl.
Vanderbilt University		(1914)	Kentucky
Baylor University		(1917)	Texas
University of Vermont		(1915, 2)	Vermont

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Pennsylvania		(1916), (1918)	N. B. M. Ex.

*License not verified.

Pennsylvania July Examination

Dr. Thomas E. Finnegan, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written and practical examination held at Philadelphia and Pittsburgh, July 8-10, 1919. The examination covered 5 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 192 candidates examined, 172 passed and 20 failed. Seven candidates were licensed on Army and Navy credentials. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
George Washington University		(1914)	1
Howard University		(1917), (1918, 3)	4
University of Louisville		(1917)	1
College of Physicians and Surgeons, Baltimore		(1915)	1
Johns Hopkins University		(1917)	1
Southern Homeo. Med. Coll., Baltimore		(1905)	1
University of Maryland		(1906), (1917, 2)	(1918) 4
Tufts College Medical School		(1914)	1
Cornell University		(1916)	1
New York Homeopathic Medical College		(1907), (1918)	2
University and Bellevue Hosp. Med. Coll.		(1916), (1917)	2
University of Buffalo		(1915)	1
Ohio State Univ. Coll. of Homeo. Med.		(1918)	1
Hahnemann Med. Coll. & Hosp. of Phila.		(1917, 4), (1918, 6)	10
Jefferson Med. Coll.		(1915, 2), (1916, 7), (1917, 11), (1918, 28)	48
Medico-Chirurgical Coll. of Philadelphia		(1916, 2)	2
Temple University		(1917, 4), (1918, 7)	11
University of Pennsylvania		(1913, 2), (1915, 2), (1916, 4), (1917, 13), (1918, 32)	53
University of Pittsburgh		(1917), (1919, 20)	21
Woman's Med. Coll. of Philadelphia		(1917), (1918)	2
Medical College of Virginia		(1914)	1
University of Toronto		(1904)	1
University of Wurzburg, Germany		(1903)	1
University of Tomsk, Siberia		(1913)	1
	FAILED		
Kentucky School of Medicine		(1893)	1
University of Louisville		(1917)	1
Leonard Medical School		(1904), (1906), (1907)	3
Cleveland Homeo. Medical College		(1902)	1
Ohio State University Coll. of Homeo. Med.		(1918)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1917)	1
Jefferson Medical College		(1918)	2
Temple University		(1918)	2
University of Pennsylvania		(1917, 2), (1918, 3)	5
University of Pittsburgh		(1917)	1
Woman's Medical College of Pennsylvania		(1918)	1
Medical College of the State of South Carolina		(1907)	1

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Maryland		(1917)	U. S. Army
Jefferson Medical College		(1915), (1916), (1917)	U. S. Army
Medico-Chirurgical College of Philadelphia		(1916)	U. S. Army
University of Pennsylvania		(1915), (1916)	U. S. Army

Connecticut November Report

Dr. James E. Hair, secretary of the Connecticut Eclectic Medical Examining Board, reports that 3 candidates were licensed by reciprocity at the meeting held at New Haven, Nov. 11, 1919. The following colleges were represented.

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Kansas City College of Medicine and Surgery		(1918)	Arkansas
Eclectic Medical College of the City of New York		(1892, 2)	New York

Miscellany

THE "CRIME OF VACCINATION"

Old St. Joe Does Not Take the Antis Seriously

A few weeks ago the lady propagandist who goes over the country giving a series of talks against vaccination, was in St. Joseph, Mo. At one of the meetings various speakers attacked vaccination as a "crime" and dilated on its fearsome effects on the minds of its victims. While pausing for breath one of the speakers, mistaking a physician in the audience for the city health officer, accused him of being afraid to say anything. The physician in question was Dr. W. L. Kenney of St. Joseph, who immediately arose to the occasion. Here, according to the St. Joseph *Gazette*, is what happened:

"How many of us adults have submitted to this crime of vaccination?" he asked.

"Here, here," cries arose, and about fifty raised their hands. None were louder than the speaker who had just finished.

"How many of these have been 'crippled in the mind' by this vaccination?" Dr. Kenney then asked, smiling. In the hush that followed, the doctor said, "Thank you," and left the room.

The indignation that followed is well described by the newspaper, but can as easily be imagined. As a result, Dr. Kenney was challenged by the lady propagandist previously mentioned to debate the question of vaccination. Dr. Kenney's only reply was a statement which he gave to the *Gazette*. It is worth reproducing:

David went to his challenger with much greater confidence than I can. Who am I to match this Goliath of the anti-orthodox? I am only an oculist. But chiefly I am afraid to debate with the lady. I have lost a daily debate with one certain lady for twenty years and I know the odds are too heavy.

Besides, the crippling effect of vaccination on the mind is recalled to me every time I see that scar on my arm. It isn't fair of an unvaccinated, uncrippled antivaccinationist to pull me into a hopeless argument.

WHO HAS FOOLED THEM?

Now, if it were a question of facts and proofs instead of debate, there could be a decision rendered. But a decision *has* been rendered on proofs before the public for several generations, so that the man in the street, as a matter of common knowledge, knows that vaccination will check an epidemic by preventing smallpox. Millions of people for half a dozen generations and in various climes and countries have voted for compulsory vaccination. Who has fooled these millions? Why haven't the antis saved past generations? They were more active then than now, yet generation after generation votes to vaccinate the other fellow. Doctors are chumps to cut off a source of profit by preaching to the people. They prevent typhoid by vaccination, and typhoid used to be always with us. Poor business men, these doctors! However, the antis claim that mammoth trusts control the doctors, so that they are willing to lose a $200 case of typhoid for a $5 vaccine fee.

FEEL A PROFESSIONAL RESPONSIBILITY

Why can't the antis believe that doctors feel a professional responsibility toward humanity, and when knowledge comes to them they give it to the world? That is what the antis claim to do, so why can't they understand that others may feel the zeal of the proselyter. But the antis protest that only the compulsory feature is objectionable to them and that they favor sanitation and lots of good things.

Yes, and they favor compulsory quarantine, for they know full well no other is effective. And they favor compulsory sanitation, for who will pay for expensive sanitation except the law requires it? Even then the doctors continually campaigning for enforcement of sanitation laws—the sneaking poisoners! Why, the evil-minded trust of medical men has eradicated yellow fever, a deadly disease indeed, and malaria, too, by urging compulsory laws they have suggested. Of course, it was for dollars or else some other trust bade them do it!

OTHER COMPULSORY LAWS

Don't antis know that we must have compulsory laws to raise taxes and we have compulsory traffic laws, compulsory educational laws, compulsory Sunday laws, compulsory military laws, compulsory prohibition laws, and compulsory monogamy laws? And each one is necessarily compulsory, too. Besides the compulsion, the antis have urged that the vaccination may transfer bovine qualities. I grant that many do bellow like a calf at the time. The antis made this claim contemporaneously with the experiments on monkeys and arm-to-arm inoculation, and corpse-monkey-calf sequence of inoculation as quoted in recent handbills of the antis.

Recent speakers also claim the transference of the following, as taken from my notes: leprosy, tuberculosis, foot-and-mouth disease, influenza, typhoid, syphilis, cancer, heart and kidney diseases. And solemnly read the assertion of an outlaw doctor that the sore on the arm is nothing else than the chancre or initial sore of syphilis. We can so easily show the germs of syphilis and the blood tests are so dependable that any anxious anti can find out positively. However, I have yet to meet a case of real honest-to-goodness syphilis that couldn't tell me confidentially the precise source.

AS TO CANCER

Now, cancer next. Oh, cancer! what chills can be thrown by thy name! But the microscope shows positively and easily what tissue is cancer and what is not. It is very hard to inoculate and remains as a local tumor at the point of inoculation. It is possible to inoculate mice with their own kind of cancer, but almost impossible to inoculate cancer into the human family.

The antis solemnly say doctors can't say what causes cancer, therefore they can't say that vaccination doesn't. Well, they can't say what causes twins, but they do say that vaccination doesn't. The antis take statistics and show that cancer and pneumonia and insanity have been on the increase since vaccination came in. Well, so have divorces! Also the high cost of living! It seems more probable that in the past cancer was not diagnosed or reported. In fact, it is hard to get diseases reported in this present century.

In all debates the burden of proof is on the one who assaults an established thing or custom. I challenge the antis to bring the one-armed veterans of the antivaccination war who reside in St. Joseph into a gigantic parade on Saturday, each squad of four carrying in their right and lonesome hands a stretcher supporting a cripple less fortunate. Let them be captained by those who *nearly* lost an arm and let the battalions be marshaled by those who had smallpox despite vaccination. Let the nurses be ladies with pock-marked faces and a banner proclaiming the advantages of scars on the faces rather than on the arm. And for a general, try to find an anti who has been vaccinated and escaped without a crippled mind. Let this army parade into the east door of the courthouse and from the north or west door I will advance with an equal number of cases of smallpox, man for man. Then let all hold up their hands who object to vaccination!

THE CAMPAIGN AGAINST VENEREAL DISEASE IN SWITZERLAND

An association to combat the spread of venereal disease was formed in French-speaking Switzerland in 1918, and in October, 1919, it launched a vigorous general campaign over the whole of this part of the country by means of numerous local committees for small sections. The local group comprises physicians, teachers, clergy, and delegates from athletic and other clubs, etc., besides the municipal authorities. Each local committee works under general direction from the headquarters at Lausanne, and material for propaganda is provided. The aim is to decentralize the work as much as possible, starting innumerable foci for propaganda throughout the country.

Lantern slides are loaned and the lectures are widely advertised on the billboards: "Social Danger of the Venereal Diseases. Free public lecture by Dr. X and Senator X." A state or municipal authority always speaks in addition to the medical speaker. Pamphlets and circulars are distributed in assemblies of men and in factories. Series of conferences are given also for the sexes separately. Public lectures have thus already been delivered, according to a writer in the *Paris Médical*, to a total of twelve at Geneva, twenty at Neuchatel and Lausanne, and from one to five at other points.

The fact that no protests are heard against the billboard announcements shows, the writer says, that the time is ripe for this open campaign. The halls are constantly crowded.

The expense is borne by subsidies from factories, etc., donations from individuals, and state appropriations. German-speaking Switzerland has an association of its own for the purpose, but it works on the centralization system, instead of the scattered foci plan of the Lausanne headquarters.

Medicolegal

A Valid Food and Soft Drink Health Ordinance

(City of Portland v. Traynor (Ore.), 183 Pac. R. 933)

The Supreme Court of Oregon, in affirming, in two cases considered together, judgments of conviction of violating Ordinance 35013 of the city, providing for the licensing of persons conducting or working in food and soft drink establishments, holds that, under its charter, the city had a legal right to adopt the ordinance. The charter also makes it the duty of the bureau of health to enforce such an ordinance, and vests it with power to make the necessary rules and regulations for its enforcement. The ordinance provides that it shall be unlawful for any person to open for business, conduct or maintain, or cause to be opened, conducted or maintained, any food establishment in the city of Portland without first securing a license therefor. If, on investigation, the proposed location is found to be suitable for a food or soft drink establishment, and in proper sanitary condition, according to the ordinances of the city and the rules and regulations of the United States with reference to plumbing, water supply, ventilation and cleanliness, the bureau of health shall issue to the applicant a permit for such establishment. The ordinance also provides that it shall be unlawful for any individual to be employed or to work in any food establishment without having first obtained a health certificate, or for any employer to hire any individual without such certificate, and it is specified that the certificate is to be renewed quarterly, and that no certificate more than three months old shall be recognized by any employer. Any person desiring to secure a certificate of health shall present himself to the bureau of health at least once every three months, and, if the person is found by the bureau to be physically fit and free from diseases that are dangerous to the public, the bureau of health shall issue to such person a certificate of health entitling such person to work in a food establishment or soft drink establishment. The term "food establishment," whenever used in the ordinance, shall mean and include every place in the city where food products are sold or offered for sale or served to the public, or manufactured, produced, concocted, prepared or cooked for the public. The term "soft drink establishment" shall be deemed to mean every place in the city where drinks are sold, manufactured or served or offered for sale to the public. The word "person" shall mean any person, firm, or corporation. To carry out the provisions of the ordinance the city was divided into seven districts, and inspectors were appointed for each. It was their duty to examine all the food and soft drink establishments in the city, to ascertain whether the owners thereof were complying with the municipal health ordinances in the construction of their buildings and sale of their merchandise, and in particular to note whether employees coming in contact with soft drinks, groceries, fruit and vegetables with their hands were healthy and free from contagious or infectious diseases. A card index system was established, and after inspection the employees were required to report to the bureau of health, and to submit to physical examination, for which, under the terms of the ordinance, a nominal charge was made. If it was found by the inspectors that the premises where the business was to be conducted were sanitary and complied with the ordinances of the city, a license was then granted to conduct the business on the payment of an annual fee. If on examination an employee was found to be free from contagious or infectious diseases, a certificate was then issued to him by the bureau of health, authorizing him to handle and sell such merchandise in bulk, as distinguished from canned or carton goods. The defendant was engaged in conducting a grocery store in the city, and refused to obtain a license for his business. He raised constitutional questions to the validity of the ordinance, but the court holds that it was valid. The defendant's contention that the medical examiners were careless and negligent in the discharge of their duties was not supported by the evidence; but, assuming that to be true, it would go only to the administration, and not to the validity, of the ordinance, and would not be a defense to the charge against him. Nor was it for this court to say whether or not the measure should have been enacted; that was a legislative, and not a judicial, question.

Stenographer Not Able to Bind Company for Operation

(Producers' Oil Co. v. Green (Texas), 212 S. W. R. 68)

The Court of Civil Appeals of Texas, in reversing a judgment for $150 that was obtained by the plaintiff, Dr. Green, against the oil company, says that the action was brought against the corporation and one Sherman to recover the reasonable value of services rendered in the performance of a surgical operation, known as suture of the patella, on one Earp, one of the company's employees who had been injured while in its service. The plaintiff sought judgment against Sherman individually only in the event that the corporation was not held. The undisputed testimony showed that Sherman was merely a stenographer and clerk in the office of one Clayton, the latter being a general officer of the company and head of the department in which Sherman worked, the actual operation of the corporation's business being divided into departments, each having a head. The jury found, on special issues submitted to it, that Sherman, before the service was rendered, requested Dr. Green to perform the operation on Earp under statement that the company would pay him for it, and that Sherman was authorized by the company to make such request and statement. But the evidence showed that at the time he made the request and statement the company was a subscriber to the workmen's compensation act, and had provided for the insurance of all its employees thereunder, which facts were then communicated to Dr. Green; and that, aside from such authority as legally might and actually did come to him from his superior officer, Mr. Clayton, Sherman had none whatever to bind the company to pay for medical services rendered to Earp, and Mr. Clayton had turned over to him only the matter of attending to the accident report in Earp's case, and not the management of it generally. Under all the circumstances, the court concludes that the jury's finding that Sherman was authorized by the oil company to make the arrangement stated with Dr. Green had no support; that the company was not liable, and that its request for a peremptory instruction embodying that view of the law should have been given. Private corporations with the limited charter powers of operating, drilling for and producing oil, as this one was shown to be, may not become bound on the mere ipse dixit or statement of such an underling for medical services, rendered, or to be rendered, under the circumstances here presented, to another of its employees. Corporations can be bound by their agents only when acting within the scope of their authority, and those dealing with such agents are not only chargeable with notice of, but, in case of controversy, have the burden of showing, the authority assumed to have been in fact possessed. Manifestly no such burden was met in this case. Even if it had been shown that Clayton knew all that Dr. Green said occurred between himself and Sherman, and had delegated to the latter every power he himself possessed for the corporation, a majority of the court is of the opinion that it would still not have been bound; this for the reason that the company had previously provided a method of caring for such contingencies by means of the insurance it had taken out for the benefit of its employees under the compensation act; and not even one of its general officers could substitute a different provision, or impose a liability on account of services rendered an employee, particularly in the absence of special authority from the board of directors.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, New Orleans, April 26-30.

Air Service Medical Assn. of the U. S., New Orleans, April 26.
Alabama State Medical Association, Anniston, April 20-22.
American Association of Anatomists, Washington, D. C., April 1-3.
American Assn. of Pathologists and Bacteriologists, New York, April 2-3.
American Dermatological Association, Asheville, April 22-24.
American Proctologic Society, Memphis, Tenn., April 22-23.
American Radium Society, New Orleans, April 26.
American Urological Association, New York, March 23-25.
Assn. for Study of Internal Secretions, New Orleans, April 26.
Assn. of Amer. Teachers, Diseases of Children, New Orleans, April 27.
Assn. of Military Surgeons of the U. S., New Orleans, April 24.
Louisiana State Medical Society, New Orleans, April 24-26.
Medical Veterans of the World War, New Orleans, April 26.
Missouri State Medical Association, Jefferson City, April 6-8.
National Tuberculosis Association, St. Louis, Mo., April 22-24.
New York State Medical Society, New York, March 23-25.
North Carolina State Medical Society, Charlotte, April 20.
South Carolina Medical Association, Greenville, April 20-21.
Tennessee State Medical Association, Chattanooga, April 6-8.
Texas State Medical Association, Houston, April 22-24.
The Radiological Society, New Orleans, April 23-24.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Joint Annual Conference of the Council on Medical Education of the American Medical Association with the Association of American Medical Colleges and the Federation of State Medical Boards of the United States, held in Chicago, March 1-3, 1920

The conference met in the Congress Hotel and was called to order at 10 a. m. by Dr. Arthur Dean Bevan, Chicago, chairman of the Council on Medical Education.

Further Development of Medical Education

DR. ARTHUR DEAN BEVAN, Chicago: In calling your attention to certain tendencies and weaknesses, which I have felt should be pointed out and corrected, I do so with the feeling of optimism for what our medical schools are accomplishing and what we shall certainly accomplish within the near future. I feel strongly, however, that in developing the medical school as we are now very properly doing, as the medical department of the university, we must do so on very broad and practical lines and keep in mind the interests of the patient, of the profession, and the community and remember that medicine is not only a science but also an art.

At present in this country we are in a condition in which the professor in anatomy, physiology and the other laboratory branches and the laboratory worker in clinical medicine have been given too large a part in the task of reorganizing the university medical schools and in developing the medical curriculum. This tendency should be corrected. We should keep constantly in mind the fact that the first and highest duty of the medical school is to train competent practitioners of medicine, and this cannot be done by the college professor of embryology and comparative anatomy, or by the chemist working in a clinical laboratory or by the research worker in some isolated medical institute. These men are not competent to develop and control medical education along sound lines. Yet, that is unfortunately the tendency of the time. This problem should be met by placing the control of medical education where it belongs, in the hands of medical men.

First, we should insist that the teachers of the laboratory branches shall have a medical training, a medical point of view; that they keep in touch with the medical profession and the art and science of medicine, and that they realize that their first duty is to assist in training practitioners of medicine.

Secondly, we should insist that the teachers of the clinical branches shall have a broad training in both the science and the art of medicine; that they be great clinicians in their special fields, and that they be trained to understand not only what the medical student needs to know in their particular specialty, but also what anatomy and physiology, pathology and pharmacology the student needs to acquire to become an expert practitioner in any particular field. Such teachers would bring about a better correlation of the clinical and laboratory branches. Fortunately, in the last twenty years, we have trained many such men in this country. There is an abundance of high class, well trained men to fill the places of the clinical teachers required.

The back bone of a medical faculty should consist of the professors of medicine, surgery, obstetrics and pathology. Such a group should control a teaching hospital and outpatient department, with adequate clinical and pathologic material and well equipped laboratories. The plant should be located where it can secure ample clinical material with little or no cost to the medical school. The affiliation of a large municipal, state or sectarian hospital with a medical school would be of mutual benefit, not only to the hospital and medical school but also to the community in which they are located

The laboratory branches in medicine are important, but a medical school is a school to train physicians and not anatomists or physiologists. If the training of physicians is well done it will frequently result in training teachers and research workers at the same time as important and desirable by-products.

THE FINANCIAL SIDE OF MEDICAL EDUCATION

Many plans are now being developed apparently without any consideration of the cost of medical education. Fees of students average about $150 a year, and the cost of a medical education is about $450, and in many institutions $1,000 or more, and is still mounting. The cost of running a hospital for medical teaching should never be charged to the medical school. It is not in the interest of the community for a medical school to create and maintain a hospital primarily for the teaching of medicine. The first purpose of a hospital is to take proper medical care of patients, and this function is best performed if it also fulfils the functions of medical teaching and medical research. The great municipal, state and sectarian hospitals should be placed at the disposal of our medical schools for teaching and research.

A state hospital in Iowa, operated primarily for the purpose of furnishing the best medical care to the people of the state, is very properly placed under the control of the State University of Iowa, and becomes the teaching hospital of the medical school. The Iowa plan has been well thought out and is so sound that many of our older medical schools might adopt it with profit to themselves.

The much discussed plan of all-time clinical teachers is a very costly one. It is so extravagant that it cannot be generally adopted by the medical schools of the country. Unless it has unlimited resources, a medical school should not consider the plan at all. Even a school with large resources can secure better results by adopting the more practical part-time plan for its clinical teaching. The all-time clinical teacher scheme has proved to be exceedingly costly; it is also exceedingly difficult to secure the most desired men with the restrictions that at once exclude the holder from the rewards of professional work well done. The all-time plan is an experiment that should be tried out in a few schools that can obtain the large endowments necessary.

The majority of medical schools should adopt the part-time plan. The teachers in the clinical departments should receive the same salaries as the professors in the other departments in the university, and should be required to devote the necessary amount of time to their positions. The college should insist, however, that their clinicians maintain positions as great clinicians and keep in contact with both the medical profession and the community. The clinician should be provided with a limited number of private beds in the hospital, and to these his private work should be limited. If the professor abuses his privileges, the university authorities should correct or eliminate him.

GRADUATE MEDICAL EDUCATION

There is a growing demand for graduate instruction in medicine which must be met by the universities of the country. Fifteen or twenty universities are so situated that they could establish satisfactory graduate medical schools.

The plan proposed includes the following propositions:

1. A complete and separate department for graduate work should be established. Certain men might work in both undergraduate and graduate departments, and certain laboratories and hospitals might be used in common; but in order to develop a graduate department of the best type, a complete separate faculty and plant is required.

2. This graduate school of medicine should furnish instruction of various kinds, as follows:

(*a*) For recent graduates who have completed their hospital internship and who desire to specialize in some clinical or laboratory field, a course of three years should be provided in a well organized clinic, where each assistant would be an essential part of the machinery, where he does clinical work, teaching and research work, and is given a real opportunity and responsibility in the handling of patients. At the end of such a three years of training, the assistant would be competent, in the absence of his superior, to conduct the clinic. At the end of such a course the student should be given a degree, Master of Science in Surgery, Ophthalmology, etc., or, if the assistant has taken a three-year course in a laboratory branch, a degree of Doctor of Philosophy, in Anatomy, Pathology, etc.

(*b*) For physicians who have been practicing for three or more years, a concentrated course of one to one and a half years should be provided in the clinical branches, leading to the same degree as granted to the men in the preceding group.

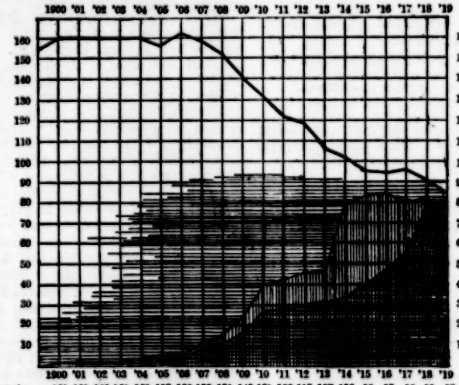
(*c*) A well planned course of from three to six months should be provided, in which practitioners could take special and thorough work in some limited field. For this they should receive no degree, but they might possibly be given letters stating that they have taken such a special course.

(*d*) There should be courses in which practitioners can brush up on several subjects, selecting their own subjects, the amount of time they devote being optional but ranging from a month to six weeks. This will numerically be probably the largest group. These practitioner courses are on the whole of great value to the medical profession and to the community. Of course, no degree or statement of attendance of any kind should be given for this work.

3. Courses should be provided for general practitioners who live near enough to the medical school to come once or twice a week to some clinical or laboratory course on some special subject.

CHART 1.—MEDICAL SCHOOLS AND ENTRANCE REQUIREMENTS

The heavy line at the top shows the total numbers of medical schools existing in the various years. The horizontal shading (indefinite) shows those requiring for admission a four-year high school education; the vertical shading those requiring one year of college work and the heavy shading those requiring two years of college work.



	1900	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19
Totals	160	160	160	160	160	158	162	159	151	140	131	122	118	107	100	96	95	96	90	85
Totals (*a*)	158	158	156	157	156	153	156	148	135	116	91	80	72	60	24	12	10	10	9	6
Totals (*b*)	..	..	..	..	..	..	..	1	2	5	8	13	14	16	16	44	44	39	30	1
Totals (*c*)	2	2	2	3	4	5	6	9	11	16	27	29	30	31	34	40	47	56	60	79

Figures show (*a*) those requiring for admission a high school education *or less;* (*b*) those requiring one year of college work; (*c*) those requiring two or more years of college work.

Improvements in Medical Education in Sixteen Years

DR. N. P. COLWELL, Chicago: About forty of the 162 medical schools existing in 1906 were without laboratories and without clinical material. Nevertheless, in 1907 these institutions turned out from twelve to 105 graduates. Now most of the medical schools have five or more well equipped laboratories, and there is not one which does not have at least three laboratories. As to clinical material, most medical colleges now actually own or control a teaching hospital, and there is not one which does not have relationship with a hospital in which at least amphitheater clinics can be held.

Methods of clinical teaching have been greatly improved. Formerly the amphitheater clinic largely prevailed in which the professor gave a lecture-clinic, or performed an operation before a large body of students. This has given way to the smaller group clinics at the patient's bedside. Patients are now regularly assigned to senior students, who write the histories, make the physical and laboratory examinations and suggest the diagnosis and treatment.

Since 1904 the proportion of medical schools requiring any college work for admission increased from only four, or less than 3 per cent., of the 160 medical colleges, to seventy-nine, or 92 per cent., of the eighty-five colleges now existing. All but one of the medical schools require that the premedical work be taken in a college of arts and science. (See Chart 1.)

The advantages in requiring that the premedical work be taken in approved colleges of arts and sciences are:

1. The physics, chemistry and biology are taught without reference to their special bearing on medicine. It is not known today what particular facts obtained in the study of these sciences will be most useful in the medical research of tomorrow.

2. The quality of the premedical work is assured since it is carried in the courses leading to the degree of Bachelor of Science in reputable colleges of arts and sciences. This provides also a satisfactory standard for measuring the value of irregular or so-called "equivalent" courses.

3. The student is free to make a final choice of his life work until he is best qualified to do so. He enters the classes leading to the Science degree; he has a chance to compare notes with those studying for other callings, and may find that some other line of endeavor appeals to him more than medicine. If so, he can make the change without any loss of time, since his premedical courses are equally acceptable for admission to other departments. This freedom of choice is of great importance to the students, since from 10 to 30 per cent. change to some other calling before their two-year course is completed.

4. Students now enter medical schools with the benefit of two years in the college atmosphere, the contact with students in other departments, the social life, and the athletics, which are bound to influence their entire lives.

5. The arrangement is a safeguard against medical cults. It is seldom that a student who has studied genuine science in his courses in physics, chemistry and biology will be misled by the fallacious claims advanced by unscientific cults.

The one disadvantage of the arrangement is the lack of uniformity in the courses in physics, chemistry and biology given in different colleges or universities. This disadvantage will be corrected through the plan to secure more uniformity.

NO DEARTH OF MEDICAL STUDENTS

Early in the campaign for higher requirements of preliminary education, some feared that medical schools would

be unable to secure students. A reduced enrolment in the first session naturally followed the adoption of the higher requirement; but in subsequent sessions, in all the better medical schools, enrolments have returned to normal proportions.

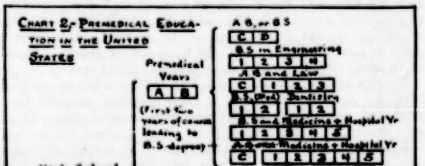


CHART 2.—PREMEDICAL EDUCATION IN THE UNITED STATES
Premedical Years
A B
C
High School
a b c d
A.B. or B.S.
C D
B.S. in Engineering
1 2 3 4
A.B. and Law
C 1 2 3
B.S. (Pre-Medicine)
1 2 3
B.S. or A.B. Medicine or Hospital Yr.
1 2 3 4 5
A.B. or B.S. Medicine or Hospital Yr.
C 1 2 3 4 5
Colleges Improved Premedical Training
Medical Training Without College Supervision
1 2 3 4 5 6
Premedical and Medical Work in Medical Schools not having close University affiliation

This chart shows (*a*) that the student is under the influence of college life and atmosphere during his two premedical college years; (*b*) that he is not required to make a final decision in regard to his life work until he has finished all premedical work, and (*c*) that at any time he can change to some other calling without difficulty.

LIMITATION OF ENROLMENTS

The limitation of enrolments by medical schools and reports of excessive numbers of premedical students have caused some alarm lest medical schools may not be able in future to admit all the well qualified students who apply. An investigation shows that the sixteen Class A medical schools which have limited their enrolments can care for 4,559 students. Thirty-nine medical schools report that their highest capacity with efficiency of teaching would enable them to care for 9,061 students. An estimate based on the inspection of thirteen other medical schools shows they can enroll and properly train about 1,810 students. The sixty-eight medical schools in Class A, therefore, can enroll without overcrowding 15,430 medical students or approximately 2,000 more than are at present enrolled in the eighty-five medical schools of the United States. By the addition of more teachers; or by the enlargement of laboratories, or by the completion of college buildings being planned or already in course of construction, the numbers of medical students who

CHART 3.—CAPACITY OF MEDICAL SCHOOLS UNDER LIMITED ENROLMENTS

Medical Colleges	No. Colleges	Total Enrolment 1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total Enrolments 4 Yrs.	Average Enrolment per College
Enrolments limited	16	1,136	1,121	1,151	1,151	4,559	285
Report highest capacity with efficiency:							
4-year colleges	31	2,222	2,109	2,063	2,056	8,450	273
2-year colleges	8	307	304	.....	.....	611	76
Estimated highest capacity with efficiency:							
4-year colleges	10	430	430	410	410	1,680	168
2-year colleges	3	65	65	.....	.....	130	43
Totals, Class A colleges	68	4,160	4,029	3,624	3,617	15,430	227
Class B colleges:							
Capacity reported	5	240	240	240	240	960	192
Capacity estimated	5	135	135	140	140	550	110
Totals, Class B colleges	10	375	375	380	380	1,510	151
Totals, A and B Colleges	78	4,535	4,404	4,004	3,997	16,940	

can be satisfactorily taught could be further increased to 17,600 or 18,000 students. The existing medical schools, therefore, are more than adequate to meet present needs and in future as the numbers of students may increase, ample provision can be made for them.

There is a real demand for medical graduates to serve as interns in hospitals, but this demand could not be met even if the number of medical colleges and the number of graduates annually should be doubled or trebled. The intern problem requires some other remedy:

(*a*) The internship might be extended to eighteen months or two years, by which the annual output of graduates would supply about twice as many hospitals.

(*b*) The hospitals might employ recent graduates to remain for several years as resident physicians or surgeons.

(*c*) Hospital assistants or nurses might be trained to do much of the work now devolving on the intern.

(*d*) The situation is relieved in some hospitals by the employment of stenographers who, at the time the patients are examined, take down histories from dictation by the members of the attending staff.

The Needs and Future of Medical Education; Ideals and Their Function in Medical Education

GEORGE E. VINCENT, President of the Rockefeller Foundation, New York: In order to measure achievement and to guide progress, there is need of ideals or standards. Without tests there is danger that opportunism, provincialism, even a narrow nationalism, will prevent the development of medical education on a broad, international basis.

In human institutions there are no absolute standards. The highest ideal may be approximated in a few medical schools in which methods may be tested and leaders trained, but it would be a serious mistake not to recognize various degrees of achievement. The influence of local conditions, the possibilities of economic support, and relations with other university units must be taken into account. All that can be confidently affirmed is that some institutions fall below any standard that can be recognized as guaranteeing results which will safeguard the public and protect the profession. The number of such schools in the United States grows steadily smaller.

There is danger that the existence of a standard may force a formal rather than a real compliance with ideals. A premature effort to conform to an accepted standard may do positive harm. For example, there is reason to believe that in the case of medical schools in the South, where high school systems have had to be developed within a brief period, there has been an overstimulation of secondary and college education; that three-year high schools have changed to a four-year curriculum with little or no additional resources or increases in numbers and efficiency of teaching staff, and that colleges have offered courses which they are not prepared to give efficiently. Moreover, the Class A of the American Medical Association, having been accepted by state boards of medical examiners and thus become a part of the official machinery has been extended in such a way as to produce serious anomalies. These will doubtless be largely removed as a result of the new survey which has recently been completed.

One of the ideals of modern medical teaching which needs constant emphasis is the provision of the best type of medical care for the sick. Laboratory and clinical methods must be thought of as a protection to the patient. Careful diagnosis, resourceful treatment, constant watchfulness are sources of safety and hope to those who come under the care of a modern university hospital. The prestige of the clinical teachers who are in charge is always at stake. The mutual scrutiny of members of the teaching staff, and the alertness of students, together with unremitting search for new truth and its application to disease, make the teaching hospital the best place for the sick.

In medical education, the relation of the laboratory and clinical years is organic. The antithesis which is often set up between these two aspects of medical education is most unfortunate. In the first and second years, the chief emphasis is laid on work in the laboratories; but this training ought to be extended right into the clinical phases of the curriculum. While it will usually happen that laboratory teachers will be graduates in medicine, many able laboratory men without the M.D. degree have demonstrated their capacity to develop cooperative and sympathetic team-work with clinical departments.

As to the hospital, it is recognized that effective teaching can be secured only in an institution which is under the

complete control of the medical school. The devices of clinical clerkships, the individual responsibility of students, close relations between bedside and laboratory, the proper organization of the teaching staff, permanence of tenure, team-work, necropsy conferences, and case conferences with physicians and social service workers are all factors in the development of clinical training of the right type.

In spite of the overcrowding to which reference has been made, there is an increasing demand for the introduction in undergraduate teaching of such subjects as preventive medicine, psychiatry, institutional administration, and some knowledge of social amelioration through clinics, popular education, improved housing, better food, recreation, and the development of community responsibility. The introduction of medical sociology in the premedical course would be of distinct value.

Judged by the criteria which are suggested in this paper, existing medical schools fitting the present need fall into two general groups:

1. University centers for teaching and investigation. The chief characteristics of these institutions are: broad and thorough preparation; limitation of numbers in proportion to faculties and staff; well rounded laboratory equipment with professional teaching corps; complete control of adequate hospital and dispensary facilities with vocational leadership in the clinical departments, which include the chief specialties; practitioner or avocational clinical teachers organized systemically into a unified staff; geographic concentration of all phases of plant and instruction; laboratories and clinics in close relations of cooperation and interdependence; research a conscious purpose; facilities for graduate study.

2. Training centers, parts of academic institutions. Two-year college requirement; limitation of numbers; fundamental laboratory facilities with professional teachers; control of appointments to hospital and dispensary staff; practitioner clinical teachers well organized in long service periods; assisted by full-time resident and other assistants; concentration of buildings and work; cooperation between laboratories and clinics; some opportunity for research by staff members.

As to the policy of the General Education Board and the Rockefeller Foundation with regard to assistance to medical education, it may be said that there is no one, inflexible type of organization which it is proposed to suggest to all institutions. Aid has been given and will continue to be given to a few centers of the higher type, but assistance is also being considered with respect to a number of institutions less highly developed. The General Education Board cooperates with medical schools in the United States, while to the Rockefeller Foundation falls the opportunity to work with medical centers in Canada and in other countries.

DISCUSSION

DR. RAY LYMAN WILBUR, President, Leland Stanford Junior University, Stanford University, Calif.: Medical education is characterized in that it must be built up around a close personal relationship between the physician and the patient. In addition to the laboratory, the library and the lecture room, it requires for its development a whole group of social agencies including the hospital and the clinic. Consequently, the medical school is unique among university departments in the immediate service rendered in the solution of the day to day physical problems of the individual and of society. The whole essence of clinical teaching is to bring together the teacher, the patient, the nurse and the student in an environment most favorable for all of them. The future of medical education depends largely on the way this environment is financed and controlled. The union of the four elements is inevitable. Society, with its heavy burden of suffering, will insist on this in some form or another.

We put tens of thousands of the mentally sick into great isolated institutions, largely without medical students or training schools for nurses. Through competent administrators we care for them reasonably well, but we have learned and are learning but little of mental disease. The ignorance of the average medical man of psychology and psychiatry is painful. Every such hospital should be a live optimistic center for study and not a pen for the lingering care of the hopeless or semihopeless. We cannot think of medical education in the future without bringing the stimulus of the student to all such hospitals, and likewise bringing one such hospital into the closest of contact with every university medical school. Perhaps with the establishment of such conditions we can gradually place the decisions on the questions of mental conditions in the hands of physicians instead of in those of untrained judges and emotional juries.

No city with a population of half a million will rest content until its medical men have at their disposal suitable hospital and other facilities for superior medical care. It is also inevitable that there will be some medical instruction wherever good medical work is done. The master in medicine needs students as much as they need a master. This does not mean a medical school in every city, but it does mean at least teaching hospitals for interns and the physicians of the neighborhood and good training schools for nurses—in other words, an educational center of prime value to the community.

Community welfare depends on the engineer and the physician more than on the politician. No physician or nurse can do his or her duty in the ordinary professional routine without training in disease from the community or public health standpoint. Every medical center, be it hospital, clinic or medical school, cannot be complete unless it offers such opportunity.

During the period immediately before us, no greater disaster could come to medical education than to have it and all of its necessary accessories fall completely into the hands of the state. The glory of American education lies in the bold initiative of such institutions as Harvard and Johns Hopkins. Picture medicine in America today had there been no Johns Hopkins, Harvard, Physicians and Surgeons of New York, or University of Pennsylvania to lead the way, so that legislatures could be stimulated to vote the money for the medical schools that have developed around the state universities. We may look ahead to a democratic state with governing bodies and a public wise enough to provide leadership in medicine; but for several generations we cannot safely trust the future of medical education with all of its needed accessories to the chances of politics.

The safety of the state university medical schools will come from the active presence of those independently endowed setting the standards in various parts of the Union. The greater burden, though, of medical education must fall on state or city controlled hospitals and universities. Through them the public will gradually learn to do its full duty in medical teaching, and in the care of patients and in research, as it is learning to spend its money to get back the return in increased production that has come from the agricultural schools.

CHARLES F. THWING, President, Western Reserve University, Cleveland: If we define education as the power to think, I think that we have a right to define medical education as the power to think in terms of medicine. I think we also have a right to say that legal education is the power to think in terms of law, both common and statute. To think is not to know simply, but it is to assess and relate knowledge. It is to know and relate fact to fact, and from fact to infer new facts. To think in terms of medicine is to think in terms of diagnosis, or understanding, of the proper evaluation of symptoms or the result of observation, each result related to every other; to assess the result of the thinking in terms of therapeutics and in terms of prognosis.

Every year at the faculty meeting in June we in Western Reserve University have this fact to contend with. We are now graduating our students at 27½ years of age. Can we get these men into the medical profession at an earlier day? We can if we will adopt the proper means; and the means lies away back of the high school; it lies in the grammar school or the grades. Boys and girls ought to enter the high school at the age of 12 and not of 14. The only way to secure that result, in my humble opinion, is not a change in the curriculum of the grammar school, but a change in the

advancing power to teach in these grammar schools; that power of advanced teaching lies in the smaller schools, the worth of the teacher lies in the element of cost, and the cost lies in the purse of the man who pays taxes. American communities ought to assess twice the present assessment in the improvement of the schools for boys and girls before the age of 12, and American communities I think are willing to do that, provided they be assured that the money is spent effectively. We are always glad to pay money in taxes for education if only the education be good. France has proved to us that their boys of 12 are as far advanced intellectually as boys of 14 in America, by reason largely of improved teaching before that age. It may be well for us in the medical school to persuade men of rather unique power to continue their education far beyond the graduation period. There are men known to every teacher who hold forth great promise. Those men should be encouraged to stay and become shepherds for the communities.

SURGEON-GENERAL WILLIAM C. BRAISTED, Washington, D. C.: We are deeply interested in the subject of medical education. We have had magnificent institutions, with full staffs of the finest type of men from the Reserve Corps. We have had perhaps the best the colleges could give us to carry on our work during the war. I feel a great degree of comfort and satisfaction in having that type of men; with the end of the war, however, we should not desist, but try to reestablish and maintain the splendid organization we had during the war. To do that we shall have to educate as quickly as possible young men for the positions of specialists. The organization I am trying to maintain is something like this: There should be an extensive laboratory. There should be specialists in operative surgery, eye, ear, nose and throat; there should be a psychiatrist, a roentgen-ray man, and the like. What I am trying to do is to have all these specialists associated and work together. For instance, in the Washington Hospital, Admiral Stitt is not only a very fine laboratory man, but one of the finest diagnosticians we have. The time has come when we in our premedical institutions should select or cull men of particular worth for work of a particular character.

SURGEON-GENERAL M. W. IRELAND, Washington, D. C.: Medical education is of the greatest importance to us. Very early in the history of the Medical Department of the Army the Surgeon-General called attention in his annual report to the better class of men we were getting. Away back in 1840, the Medical Department of the Army had something to do in creating a better and higher standard for students who were studying medicine. In the last twenty years, medical men have been coming into the Medical Department of the Army at the average age of 28. They should enter earlier in life. In many of our army hospitals we can now give good training in diseases of women and children, as well as in the other departments of medicine. We will take men from medical colleges and give them certain compensation in addition to their upkeep while in the hospital. That is the proposition we have to present to young graduates in medicine who come into the Medical Department of the Army to complete their hospital experience.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: Dr. Bevan, if I understood him correctly, spoke rather slightingly of the showing that the civilian medical profession made in the war, particularly the laboratory men. I am not going to say a word about what the clinicians did in the war. When Surgeon-General Gorgas wanted me to formulate rules for the sterilization of water in all camps in the army, to whom could I turn? I summoned three men to Washington—Whipple, Sedgwick and Phelps, not medical men but laboratory men—men skilled in preventive medicine. I do not believe any one of them has a medical degree. These men formulated rules and gave details for the sterilization of water in all the camps and in all the field hospitals. It was done in three days. The chlorination of water was decided on.

We are building a hospital now in Ann Arbor that will have 800 beds; but this is a relatively small part of the hospital. Most of it will consist of laboratories for professors of bacteriology, pathology, clinical medicine, scientific medicine, chemistry, etc. There is no one who has greater admiration for the surgeon and the clinician than I have, but it does seem to me that we overlook sometimes the valuable services rendered by the laboratory men to the surgeon and clinician. The pathologist, the chemist and the bacteriologist are just as important in their respective fields as the man who gives medecine or uses the knife.

DR. H. GIDEON WELLS, Chicago: I have been authorized to read into the minutes of this joint conference the resolutions passed by the National Research Council, composed of both clinicians and laboratory men:

WHEREAS, A committee composed of Drs. Erlanger, Jackson, Lusk, Thayer and Vaughan appointed by the Division of Medical Sciences of the National Research Council to study the situation in regard to the supply of assistants in preclinical departments have made a thorough study of conditions in the medical schools of the country and submitted a report setting forth existing conditions and analyzing suggestions as to improvements; and

WHEREAS, This study shows that there is a serious scarcity of men of proper caliber for assistants in preclinical sciences seeking such positions; be it

Resolved, By the Division of Medical Sciences of the National Research Council:

1. That this deficiency in assistants constitutes a very serious menace to medical education because not alone are there insufficient assistants for the present needs of instruction in the preclinical sciences, but the deficiency of the present inevitably must result in an inadequate number of men qualified for higher positions in the preclinical sciences and a consequent deterioration in these departments in a very few years.

2. That since the clinical departments are in many ways dependent for their efficiency on the instruction afforded and the investigation conducted in the preclinical sciences, deterioration in the preclinical sciences will result in deterioration in the clinical departments.

3. That since these conditions enumerated under 1 and 2 exist, it is very essential that steps be taken to provide for a more satisfactory supply of assistants in the preclinical sciences.

4. That since directly or indirectly the remedy for these conditions depends to a large degree on increased budgets for salaries for assistants, instructors, assistant professors and professors, technicians and supplies, it is highly important that funds be secured for these purposes to prevent deterioration in the entire structure of medical education.

5. That since this need for funds for the preclinical sciences seems so pressing, the larger proportion of funds available for developing medical education should be applied to the preclinical rather than to the clinical departments of the medical schools for the present and until such time as a more satisfactory situation is obtained in the preclinical sciences.

DR. LOUIS B. WILSON, Rochester, Minn.: I should like the privilege of supporting these recommendations of the Council on Medical Research. Since Jan. 1, 1919, I have had 1,121 applications for fellowships in the Mayo Foundation. Four were for work in the fundamental sciences. This is not the general ratio. So far as we can determine, there are in the United States today not one-fourth as many young men engaged in laboratory work as there should be to fill the places which are now vacant.

DR. GEORGE M. KOBER, Washington, D. C.: We are all proud of the achievements in scientific medicine in the United States which have been brought about very largely through experimentation on the lower animals in determining the causes, prevention and treatment of disease. A bill has been introduced in Congress, known as Senate Bill 1258, and in connection therewith I wish to present the following for adoption:

The Annual Congress on Medical Education, composed of the Council on Medical Education of the American Medical Association, the Association of American Medical Colleges, and the Federation of State Medical Boards of the United States, has learned with regret that serious efforts are being made to enact Senate Bill 1258, "A bill to prohibit experiments upon living dogs in the District of Columbia and in any of the Territorial or Insular Possessions of the United States."

The highest aim of scientific medicine is the eradication of preventable diseases. The average span of life in the United States has been lengthened fully eight years during the past twenty-five years, largely the result of animal experimentation in the study of the causes, prevention and treatment of communicable diseases.

A careful examination of the law now in force in the District of Columbia shows that the provisions of the current law are ample and sufficient to prevent cruelty to animals, and since the enactment of the bill would be the death knell to the progress of scientific medicine, this congress respectfully but earnestly protests against its enactment as unnecessary legislation and detrimental to the best interests of the human family, and to animal husbandry.

The resolution was put to a vote and adopted unanimously.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

December, 1919, 6, No. 12

Roentgenologic Study of Metastatic Malignancy of Bones. A. B. Moore, Rochester.—p. 589.
Case of Myxochondrosarcoma of Femur. A. Cotton and S. McCleary, Baltimore.—p. 594.
*Dislocation of Innominate Bone. J. T. Murphy, Toledo.—p. 601.
Arithmetical Computation of Roentgen Dosage. G. M. MacKee, New York.—p. 602.
Treatment of Diseases of Thyroid; So-Called Hyperthyroidism. J. A. Lichty, Pittsburgh.—p. 608.
Treatment of Goiter by Radiation. R. H. Boggs, Pittsburgh.—p. 613.
*Early Roentgen-Ray Diagnosis of Ulcerative Tuberculous Colitis. L. Brown and H. L. Sampson, Trudeau, N. Y.—p. 625.
Teleroentgenography of Head. P. M. Hickey, Detroit.—p. 641.
Safety Device for Roentgen Ray Tubes. G. C. Johnston, Pittsburgh.—p. 643.
Multiple Myeloma of Bones. W. A. Evans, Detroit.—p. 646.

Dislocation of Innominate Bone.—A boy, aged 6 years, fell from the seat of a farm wagon loaded with 3,200 pounds of coal, and the front wheels passed over his abdomen. Shock and prostration were marked. The patient could not be moved for ten days. The leg was flexed and the foot was everted. A large hematoma covered the entire lumbar region. The roentgen rays revealed a dislocation of the left innominate bone. Attempted reduction failed; fixation in plaster for three weeks brought about recovery with normal function.

Early Roentgen-Ray Diagnosis of Ulcerative Tuberculous Colitis.—While in many cases of ulcerative tuberculous colitis a positive diagnosis by clinical or laboratory methods cannot be made, Brown and Sampson claim that the roentgenologic method has enabled them to make a diagnosis positively in many cases in which otherwise the diagnosis would have remained uncertain. The roentgenologic diagnostic criteria are filling defects and hypermotility.

Archives of Internal Medicine, Chicago

Feb. 16, 1920, 25, No. 2

*Study of Colloidal Gold Reaction and Its Clinical Interpretation. M. Warwick and C. E. Nixon, Minneapolis.—p. 119.
Analysis of Spread of Excitation Wave in Human Ventricle. G. Fahr, Madison, Wis.—p. 146.
*Yellow Fever Observations Made in Guayaquil, Ecuador, in 1918. C. A. Elliott, Chicago.—p. 174.
*Pericarditis with Effusion. An Experimental Study. C. S. Williamson, Chicago.—p. 206.

Study of Colloidal Gold Reaction and Its Clinical Interpretation.—While Warwick and Nixon believe that the colloidal gold test is the most delicate of the routine spinal fluid reactions, it does not replace any other test but, on the other hand, is of independent value. It is of especial importance in the early diagnosis of neurosyphilis. A colloidal gold curve may be obtained with or without other positive findings after provocative treatment. It does not parallel clinical signs nor give definite evidence of improvement under treatment. Patients with no involvement of the central nervous system, or who are nonsyphilitic, give no colloidal gold curve. Clear cut clinical cases of tabes dorsalis may show all the spinal fluid reactions negative both before and after treatment. A curve in Zone III, with a negative cell count and negative or faintly positive globulin, is strongly suggestive of a brain or cord tumor or myelitis. Curves in Zones I and II may be found in nonsyphilitic conditions, such as multiple sclerosis and brain abscess. A cell count above five is pathologic, but the cell count is of no value in indicating duration or severity of the process or improvement. The authors recommend that this reaction should be included in every spinal fluid analysis and neurologic examination as well as in all cases of general syphilis.

Yellow Fever in Guayaquil, Ecuador, in 1918.—The clinical and pathologic findings are summarized by Elliott from a study of about seventy cases of yellow fever observed in Guayaquil, Ecuador, during the summer of 1918. Clinically, yellow fever is similar to infectious jaundice. The differences existing between the two diseases appear to be chiefly those of degree. There is more marked jaundice and less hemorrhage in yellow fever than in infectious jaundice. Although hemorrhage is a usual occurrence in all severe cases, yellow fever is not a true hemorrhagic disease. The hemorrhage apparently follows necrosis of parenchymatous tissues and endothelial cells. The jaundice of yellow fever appears to be of a nontoxic dissociated, hepatic (suppression) type. Death appears to be due to uremia. It is usually preceded by anuria. There is an intense degeneration of the epithelium of the convoluted tubules. The glomeruli and collecting tubes remain relatively free from degeneration. Convalescence in all patients who survive is prompt. The complete restitution of all organs to normal is remarkable. No evidences of impaired liver or kidney function remained in the cases studied, although Elliott says that intense parenchymatous changes must have occurred. Many cases are analyzed.

Pericarditis with Effusion.—By means of experimental research, Williamson found that in pericardial effusion the fluid accumulates first along the lower margin of the heart and about the apex, particularly on the diaphragmatic surface of the heart. With small effusions, this is the only place in which fluid accumulates with regularity. The result of the accumulation of the fluid in this position is to push down the left lobe of the liver. This was demonstrable in practically every case, and in many cases it was a very conspicuous feature. Special stress should be laid on this as an early diagnostic sign. The second place in which fluid accumulates is over the great vessels at the base. With small effusions it is occasionally present in sufficient amount to be detected by percussion. With medium sized effusions this layer is generally thick enough to be demonstrable by percussion, and this retrosternal dulness is an important diagnostic sign. With both small and medium sized exudates Williamson was unable satisfactorily to demonstrate percussion dulness in the fifth right interspace (Rotch), nor could a rounding of the cardiohepatic (Ebstein) angle be made out in a single case. The behavior of the fluid is practically independent of the position of the patient. In at least fourteen of the thirty-three cases studied the anterior surface of the heart, in spite of the exudate, remained, in part, uncovered by the fluid so that a pericardial friction rub could readily exist. This pericardial rub is to be anticipated in cases in which the heart is relatively large, so that it fills out the space between the vertebral column and the sternum. From the standpoint of the most readily reached small amounts of fluid, the most appropriate sites for puncture are either just outside the apex or in the chondroxyphoid angle.

Boston Medical and Surgical Journal

Feb. 26, 1920, 182, No. 9

Surgery of Genito-Urinary Tract Observed at Base Section 2, France. R. F. O'Neill, Boston.—p. 213.
Mental Factor in Chronic Intestinal Invalid. J. Bryant, Boston.—p. 219.
Specific Diagnosis and Treatment of Acute Lobar Pneumonia. L. H. Spooner, Boston.—p. 224.

Canadian Medical Association Journal, Toronto

February, 1920, 10, No. 2

Focal Infections; Ileal and Colonic Stasis. G. E. Armstrong, Montreal.—p. 106.
Chronic Intestinal Stasis. D. T. Smith, Ottawa.—p. 111.
*Winnipeg Epidemic of Lethargic Encephalitis. W. Boyd, Winnipeg.—p. 117.
Obstetric Paralysis. J. W. Sever, Boston.—p. 141.
Treatment of Empyema in Lobar Pneumonia by Early Aspiration. T. McCrae, Philadelphia.—p. 162.
Blood Transfusion. C. K. P. Henry, Montreal.—p. 166.
Cases of Syphilitic Aortic Insufficiency and Cerebrospinal Fever Supervening on (?) Erythema Nodosum. J. C. Meakins, Montreal.—p. 179.
System in Care of Sick. R. D. Rudolf, Toronto.—p. 185.

Winnipeg Epidemic of Lethargic Encephalitis.—In the Winnipeg epidemic of sixty cases there were twenty-three deaths, a mortality of 38 per cent. The characteristic case presented fever, drowsiness, strabismus, ptosis, diplopia, tinnitus, some degree of facial weakness, constipation and,

perhaps, some urinary and spinal fluid changes. The fleeting nature of the disturbances was very typical. Sensory disturbances were present in a number of cases. Some of the cases were atypical, suggesting cerebral tumor, apoplexy and other brain lesions. The brain was examined in eighteen cases, and showed marked congestion, perivascular infiltration with lymphocytes and plasma cells, and occasionally hemorrhage. Degeneration of the nerve cells was variable. The changes were most marked in the midbrain. Marked lesions were also found in the kidneys. A remarkable epidemic of hiccup occurred in Winnipeg at the same time as the outbreak of encephalitis.

Colorado Medicine, Denver

February, 1920, **17**, No. 2

Empyema at Camp Kearney During Recent Epidemic of Influenza. T. E. Bailly, J. R. Arneill, A. S. Granger, L. Shulman and F. E. Smith, M. C., U. S. Army.—p. 30.
Diagnosis of Empyema. J. N. Hall and S. B. Childs, Denver.—p. 36.
Treatment of Corneal Conditions by General Practitioner. W. H. Crisp, Denver.—p. 44.
Vincent's Angina. I. D. Scott, Boulder.—p. 47.

Delaware State Medical Journal, Wilmington

Oct., Nov., Dec., 1919, **10**, No. 4

Roentgen-Ray Treatment of Hyperthyroidism. G. C. MacElfatrick, Wilmington.—p. 6.
Tuberculosis Problems Confronting the General Practitioners. A. Robin, Wilmington.—p. 11.

Georgia Medical Association Journal, Atlanta

January, 1920, **9**, No 9

Digitalis Administration. W. C. Pumpelly, Macon.—p. 33.
Importance of Urologic Examination in Abdominal Diagnosis. G. Y. Massenburg, Macon.—p. 34.
Mental Hygiene. W. L. Funkhouser, Atlanta.—p. 36.
Importance of Early Correction of Club Feet. T. Toepel, Atlanta. —p. 38.
Part and Profit of Family Physician in Public Health. M. F. Haygood, Atlanta.—p. 42.
Early Recognition and Treatment of Neuroses and Psychoneuroses. N. M. Owensby, Atlanta.—p. 43.
Early Diagnosis of Carcinoma of the Uterus and Its Treatment with Radium. W. C. Gewin, Birmingham.—p. 49.

Iowa State Medical Society Journal, Des Moines

Feb. 15, 1920, **10**, No. 2

Influenza in an Army Camp. E. T. Edgerly, Ottumwa.—p. 31.
Bacteriology and Pathology of Influenza. H. Albert, Iowa City.—p. 35.
Control of Influenza Epidemics. J. H. Hamilton, Iowa City.—p. 38.
*Relation of Influenza to Tuberculosis. J. H. Peck, Des Moines. —p. 42.
Surgical Complications in 1,030 Cases of Influenza. C. J. Rowan, Iowa City.—p. 44.

Relation of Influenza to Tuberculosis.—A resumé of the cases seen in private and clinical practice during the past four months leads Peck to the conclusion that while a fair proportion of patients admitted a recent attack of influenza and every respiratory infection short of a frank pneumonia has been called the "flu," it has appeared that in some the tuberculosis has been evidently aggravated, but in the large majority the intercurrent influenza has apparently not been the actual causative factor in the acute exacerbation of tuberculosis.

Journal of Bacteriology, Baltimore

January, 1920, **5**, No. 1

Nitrogen Metabolism of Actinomycetes. S. A. Waksman.—p. 1.
Changes in Reaction as Result of Growth of Actinomycetes on Culture Mediums. S. A. Waksman and J. S. Joffe.—p. 31.
*Sterilization of Oils by Means of Ultraviolet Rays. L. T. Fairhall and P. M. Bates, Washington, D. C.—p. 49.
*Bacillus of Morgan No. 1; A Metacolon-Bacillus. Th. Thjøtta, Bergen, Norway.—p. 67.
*Method of Isolation and Identification of Members of Colon-Typhoid Group of Bacteria. J. Bronfenbrenner, M. J. Schlesinger and D. Soletsky, Boston.—p. 79.
*Extracts of Pure Dry Yeast for Culture Medium. S. H. Ayers and P. Rupp, Washington, D.C.—p. 89.
Modified Procedure for Preparation of Testicular Infusion Agar. G. W. Clark, Berkeley, Calif.—p. 99.
Apparatus for Obtaining Samples of Water at Different Depths for Bacteriologic Analysis. F. C. Wilson, Madison, Wis.—p. 103.

Sterilization of Oils by Means of Ultraviolet Rays.—Experimental research by Fairhall and Bates has shown that certain oils, such as olive oil, cottonseed oil and almond oil, can be sterilized effectively by means of relatively short exposure to ultraviolet rays. The abiotic power of the ultra rays is not restricted to the vegetative bacterial cell alone but extends to the spores as well as to certain molds, such as *Penicillium*, *Aspergillus* and *Mucor*. Lipolytic enzymes in oil are sensitive to, and their action is inhibited by, exposure to ultraviolet rays. Except for a slight bleaching, the oil is unchanged physically and chemically by this exposure. The sterilizing effect of ultraviolet rays is still apparent after they have been filtered through layers of oil 4 mm. in thickness. Olive oil when exposed for long periods of time shows an increase in acidity, and this increase is directly proportional to the length of exposure.

Bacillus of Morgan No. 1: A Metacolon Bacillus.—Nine cases of diarrhea or dysenteriform colitis are analyzed by Thjøtta. Two of these ended fatally and the postmortem examination showed the existance of a severe colitis. From these cases of intestinal disturbance, typical strains of the bacillus No. 1 of Morgan were isolated, while it was impossible to discover the presence of other pathogenic germs. Seven of these strains were studied immediately after isolation as well as after one and one-half years of growth on artificial mediums, and most of them altered their characters considerably during this time. They could culturally no longer be recognized as belonging to the Morgan group, but had to be looked on as dysentery strains. Serologically, there could not be detected any relation between these strains and other pathogenic microbes, such as typhoid, paratyphoid A and B, dysentery I, II and III or colon bacilli. Neither was it possible to find any considerable relation between the various strains themselves, nor did any of the strains show the slightest agglutination in the serum from the patients. Thjøtta concludes that the Morgan bacillus is simply a *Bacterium coli* of a certain fermenting type. Consequently, he says, it would be better to give it the Danish name "metacolon organism" as this name points to the large group of the colon bacilli, while the name of Morgan bacillus gives the idea of a microbe of a certain special type.

Methods of Isolation and Identification of Members of Colon-Typhoid Group of Bacteria.—According to these authors the bactericidal power of CR (China blue-Rosolic acid) is due entirely to the action of rosolic acid. Moreover, the inhibition of growth seems to be directed only against gram-positive bacteria. Almost all gram-negative bacteria tested grow readily on a medium containing twenty-five times the amount of rosolic acid which is inhibitive for gram-positive organisms. This apparent selective action of rosolic acid, coupled with its failure to inhibit the growth of *B. dysenteriae* renders this dye particularly suitable for the preparation of selective mediums to be used for the isolation of intestinal bacteria.

Extracts of Pure Yeast for Culture Mediums.—The value of using extracts made from dried pure yeast, that is, yeast which has been washed and then dried at a low temperature without the addition of starch or other fillers, is emphasized by Ayers and Rupp. This extract may be used alone as a basis for more complicated mediums when necessary. Extracts of pure yeast contain, besides amino-acids and other proteins, fermentable material in small amounts, probably present in the yeast cell which makes them valuable for general bacteriologic purposes. The fermentable material probably stimulates growth but renders the extract valueless as an ingredient of mediums for fermentation tests.

Journal of Cancer Research, Baltimore

January, 1920, **5**, No. 1

*Pathologic Changes Accompanying Injections of an Active Deposit of Radium Emanation. Intravenous and Subcutaneous Injections in White Rat. H. J. Bagg. New York.—p. 1.
Relation of Pregnancy and Reproduction to Tumor Growth Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slyce, Chicago.—p. 25.
*Relation of Inbreeding to Tumor Production: Studies in Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slyce, Chicago.—p. 53.

Pathologic Changes Accompanying Injections of Active Deposit of Radium Emanation.—Gagg claims that following

injections of an "active deposit" of radium emanation there is a diffusion of the radioactive substance throughout the animal body, which results in pathologic changes in the various organs. The most interesting changes were those that were found in the liver, and resulted from comparatively small doses of radium injected subcutaneously. A fatty degeneration, associated with many giant cells and hyperchromatic nuclei, was found in the liver for a comparatively long time after the treatment. Following large doses of radium, congestion and hemorrhages were frequently found in practically all the organs and in the severe, acute cases the animals died after showing symptoms of marked enteritis. The most frequent pathologic condition that occurred in the kidney was a granular degeneration and erosion of the renal cells. It was found that injections of radium resulted in the destruction of the cells of the bone marrow, and replacement by blood. Congestion of the spleen was the most constant feature following radium treatment, and in some cases this was associated with hemorrhages, and the destruction of red blood cells. The method of injection appears to determine, to a certain extent, the severity of reaction in certain organs. For example, following subcutaneous injections there was comparatively no pathologic reaction, of an appreciable extent, in the lungs, but with intravenous doses, of about the same strength, the lung lesions were severe, and consisted of proliferation and desquamation of the epithelial cells of the bronchi, marked edema, congestion and hemorrhage. The results of this investigation tend to show that the liver, gastro-intestinal tract, kidneys, lungs and spleen receive the greatest amount of radioactivity.

Relation of Inbreeding to Tumor Production.—Inbreeding is demonstrated by Slye not to be an influence in the increase or the incidence of cancer, but merely a method of analyzing a strain. Strains consistently inbred may produce 100 per cent., or 50 per cent., or 0 per cent. of cancer according to how much cancer is bred in, not in accordance with the method used. The real effect of inbreeding is to eliminate cancer by eliminating the strain. It is hybridization which increases cancer by increasing the output of cancer progeny. The ratio of tumor "takes" in increasingly later generations from hybrid crosses of low grade productivity, proves nothing, Slye claims, with reference to the inheritability of cancer, but demonstrates the biologic relation between race vigor and the number of tumor "takes." As the cancer ancestry behind a generation broadens and deepens, the individuals of that generation tend to run more and more to cancer production. This is equally true of inbred and of hybrid generations, since the amount of cancer which comes out in the progeny depends on the amount which is put into the ancestry, whether the method is inbreeding or hybridization. It is, therefore, possible wholly to eliminate cancer from the race by not putting it in through the ancestry; this is true both in inbreeding and in hybridization. In demonstrating the inheritability of cancer and of other tumor types in mice, Slye has demonstrated their inheritability also for man and for every other species in which they occur, since the cancer and noncancer tendencies which segregate out in mice must segregate out also in every other species in which they occur, and this is the test of heredity.

Kansas Medical Society Journal, Topeka

February, 1920, **20**, No. 2

Diagnosis and Treatment of Syphilis. N. F. Ockerland, Topeka.—p. 25.
Nonspecific Therapy. W. A. Myers, Rosedale.—p. 30.

Laryngoscope, St. Louis

January, 1920, **30**, No. 1

Five Cases of Lateral Sinus Thrombosis. C. R. Holmes and H. M. Goodyear, Cincinnati.—p. 1.
Otogenic Facial Paralysis. I. W. Voorhees, New York City.—p. 14.
Effect of Repeated Rotation on Nystagmus. C. R. Griffith, Urbana.—p. 22.
Laryngology and Rhinology in France. R. H. Skillern, Philadelphia.—p. 26.
Italian Contributions to Etiology and Therapy of Ozena. C. Caldera, Modena, Italy.—p. 31.
Cerebral Abscess of Frontal Sinus Origin. F. L. Christiana, Norway.—p. 38.

Maine Medical Association Journal, Augusta

February, 1920, **10**, No. 7

Control of Venereal Disease in Maine. H. E. Hitchcock, Augusta.—p. 199.

Medical Record, New York

Feb. 14, 1920, **97**, No. 7

Applied Calcium Therapy: Study of Deficiency Diseases. J. Aulde, Philadelphia.—p. 257.
Blood Transfusion in Obstetrics. J. R. Losee, New York.—p. 265.
Conservative Remedial Measures in Most Acute Infectious Diseases, In Particular for Adults and During Influenza. J. M. Taylor, Philadelphia.—p. 268.
Prognosis in Pulmonary Tuberculosis. A. Henry, Indianapolis.—p. 272.
Local Anesthesia in Radical Cure of Hernia. C. T. Souther, Cincinnati.—p. 274.
Dreams. H. Laveson, New York.—p. 275.
Case of Huntington's Chorea. M. H. Frantz, New York.—p. 277.

Feb. 21, 1920, **97**, No. 8

Experimental Study in Mental Therapeutics. L. P. Clark, New York.—p. 299.
Some Present Day Cardiologic Topics. T. E. Satterthwaite, New York.—p. 305.
Cases from Orthopedic Clinic of Lebanon Hospital. J. Grossman, New York.—p. 309.
Hippocratic Medicine. J. H. Hare, Evansville.—p. 313.
Latent Tuberculosis. O. W. McMichael, Chicago.—p. 317
Ulcer of Esophagus. J. E. Sheehan, New York.—p. 319.

Mental Hygiene, Concord, N. H.

January, 1920, **4**, No. 1

Colony and Extra-Institutional Care for the Feebleminded. C. Bernstein, Rome, N. Y.—p. 1.
Some New Problems for Psychiatric Research in Delinquency. T. W. Salmon, Boston.—p. 29.
Movement for Mental Hygiene of Industry. E. E. Southard, Boston.—p. 43.
The "Nervousness" of the Jew. A. Meyerson, Boston.—p. 65.
Anxiety and Fear. F. E. Williams.—p. 73.
Problems Confronting a Psychoeducational Clinic in a Large Municipality. J. E. W. Wallin, St. Louis.—p. 103.
Comparative Statistics of State Hospitals for Mental Disease, 1918, H. M. Pollock and E. M. Furbush, New York.—p. 137.

Michigan State Medical Society Journal, Grand Rapids

February, 1920, **18**, No. 2

Radicalism Versus Sound Judgment. R. R. Reed, Bay City.—p. 59.
Syphilis at U. S. Army Base Hospital, Camp Greene, Charlotte, N. C. C. F. Ross, Richmond, Va., and W. A. DeFoe, Detroit.—p. 60.
*Surgery of Supraspinatus Muscle. A. S. Kitchen, Escanaba.—p. 64.
*Intestinal Drainage (Enterotomy) for Intestinal Obstruction. H. J. V. Berg, Grand Rapids.—p. 67.
Etiology of Organic Heart Disease. M. A. Mortensen, Battle Creek, Mich.—p. 71.
*Why the Pain of Peptic Ulcer Is Best Accounted for by Corrosion of Gastric Juice Rather than by Hunger Contractions and Hypertonus. C. E. Vreeland, Detroit.—p. 74.
Inversion of Uterus. H. W. Yates, Detroit.—p. 75.
Reminiscence of Sir William Osler. B. N. Epler, Kalamazoo.—p. 79.

Surgery of Supraspinatus Muscle.—Among about 100 cases of injuries to the shoulder in which the roentgenograms were used for diagnosis, Kitchen found the insertion of this muscle torn out in about ten cases, as indicated by the separation of the topmost portion of the greater tuberosity of the humerus. In Kitchen's cases of dislocation of the shoulder, separation of the insertion of the supraspinatus occurred in one half of the cases.

Intestinal Drainage (Enterotomy) for Intestinal Obstruction.—Berg has modified Moynihan's method of tube drainage of the intestine so that it can be accomplished without any soiling.

Pain of Peptic Ulcer Is Best Accounted for by Corrosion of Gastric Juice.—Thirteen reasons are given and discussed by Vreeland in support of the corrosion theory of the formation of gastric ulcer.

New Jersey Medical Society Journal, Orange

February, 1920, **17**, No. 2

Application of Rehabilitation Methods from War to Civil Life.. F. H. Albee, New York.—p. 37.
Epithelioma of Tongue. E. D. Newman, Newark.—p. 41.
*Tropical Sprue in New York. M. Sturtevant, New York.—p. 44.
Cardiac Sequels of Influenza. G. P. Curtis, New Haven, Conn.—p. 45.

Tropical Sprue in New York.—Two cases of sprue seen in New York are reported by Sturtevant. One of the patients had been in Havana and the other had been in Florida for a few weeks each winter. Both the patients had symptoms

of sore mouth and diarrhea, coming in attacks. They had both lost weight. Both had a curious earthy color to their skin. Their stools were largely fat with normal pancreatic ferments. They responded in striking manner to milk diet. One of the patients showed characteristic improvement on strawberries. The other patient found the addition of salt to his milk made the milk more palatable and developed a sort of salt hunger or craving so that he would take from 40 to 70 gm. or more of sodium chlorid in twenty-four hours.

New York Medical Journal

Feb. 7, 1920, **111**, No. 6

Introduction of Study of Endocrines in Gynecology. S. W. Bandler, New York.—p. 221.
Indications for Internal Gland Therapy. W. Timme, New York.—p. 226.
Endocrine Neuroses and Their Treatment. J. Rogers, New York.—p. 229.
Endocrinology in Daily Practice. W. V. P. Garretson, New York.—p. 232.
Pineal Body. S. E. Jelliffe, New York.—p. 235.
Endocrine Tropisms; Adrenotropisms. D. M. Kaplan, New York.—p. 241.
Case of Acromegaly. M. W. Barr, Elwyn, Pa.—p. 248.
Interdependence of Function of Ductless Glands; Etiologic Factor in Toxic Goitre. J. C. O'Day, Honolulu, Hawaii.—p. 250.

Ohio State Medical Journal, Columbus

February, 1920, **16**, No. 2

Bringing Health to People. L. K. Frankel, New York.—p. 78.
Medical Service with Rainbow Division. H. D. Jackson, Circleville.—p. 82.
New Hope in Heredity. M. H. Fischer, Cincinnati.—p. 88.
Is Epilepsy Curable? C. W. King, Dayton.—p. 95.
Infection During Child Birth. H. J. Lower, Marion.—p. 98.

Texas State Journal of Medicine, Fort Worth

February, 1920, **15**, No. 10

Reporting Syphilis to State Boards of Health. R. Blue, Washington, D. C.—p. 355.
Early Diagnosis and Treatment of Syphilis. I. L. McGlasson, San Antonio.—p. 356.
Early Diagnosis and Treatment of Syphilis as Taught in U. S. Army. N. Snyder, Brownwood.—p. 358.
*Syphilis of Tracheobronchial Tree; Case of Gumma of Trachea. S. Israel, Houston.—p. 362.
Neurosyphilis Prophylaxis. G. H. Hampshire, Marlin.—p. 365.
Syphilitic Heart Disease. C. M. Grigsby, Dallas.—p. 368.

Gumma of Trachea.—The symptom for which Israel's patient came to the hospital was a severe attack of dyspnea. On examination, a swelling about the size of a hen's egg was found in the upper third of the trachea. The blood Wassermann was ++++ positive. Under antisyphilitic treatment, arsphenamin injections and potassium iodid, the mass seemed to melt away. Only a slight thickening remained.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

January, 1920, **24**, No. 8

Perihilar Bronchopneumonic Pseudolobar Phthisis. W. Overend.—p. 241.
Special Points in Technic for Roentgenography of Clavicle and Lateral Aspect of Ribs for Detection of Injuries. R. K.—p. 248.
*Roentgenotherapy of Uterine Fibroids; Results of Four Hundred Cases. Béclère.—p. 254.
*Roentgen-Ray Treatment of Case of Early Acromegaly. J. H. D. Webster.—p. 261.
Fetish of Central Ray. M. Berry.—p. 264.

Roentgenotherapy of Uterine Fibroids.—In 400 cases treated by Béclère with the roentgen ray, the two principal results obtained have been the suppression of the metrorrhagia and the reduction in the volume of the tumors. He believes that radiotherapy of uterine fibroids is one of the most important of the uses of roentgen rays in the treatment of neoplasms. Its principal rôle is to induce the destruction and disappearance of the neoplastic cellular elements of which the fibromas consist; this is the direct effect of this form of treatment, and is the earliest manifestation of its action. It is, however, nearly always necessary to continue the radiations up to the point of the destruction of the normal cellular elements of the primitive ovarian follicles. When the treatment is suspended after the cessation of the periods, and the appearance of the hot flushes which characterize the menopause, the uterine tumors usually continue to decrease, sometimes much more slowly than during the treatment. But, if, after a more or less long interval the periods reappear, this return is very frequently accompanied by a revival of the activity of the fibroid, and it again increases in size. Béclère recommends that patients, especially those under the menopause age, should not wait until the periods return before they resume treatment, but that they should submit themselves for a fresh examination if the hot flushes prematurely cease. In a similar manner the discovery that the uterine tumor has increased in size is an indication for the immediate resumption of the treatment.

Roentgen-Ray Treatment of Case of Early Acromegaly.—In acromegaly, roentgen-ray treatment at present rests almost entirely on a theoretic basis. Webster contends that it should be eminently a disease suitable for roentgen-therapy, especially in its early stages, when the anterior lobe of the pituitary would show merely a simple chromophil hyperplasia, and before secondary tumor-like formation, local pressure damage, and much skeletal change has been produced. In his case so treated the disease had been of almost four years' duration. She had sixteen treatments with hard filtered rays from temporal and frontotemporal areas, the first eleven at weekly intervals, then fortnightly, latterly at monthly or longer periods. The effect was remarkable. The severe headache was rapidly relieved, and soon entirely disappeared. The "queer feelings" almost entirely left her: from two or three weekly they dropped to about one a month. The irritability and depression almost completely left her. She lost about seven pounds in weight. The most striking changes were in the eyes, the optic discs returned practically to the normal, while the fields of vision (especially for red) greatly enlarged. The right eye still presented some irregular contraction, chiefly inferior temporal. Apart from one or two bromid powders there was no treatment beyond irradiation. The patient was lost sight of for nearly two years; her condition, subjectively and objectively, had become aggravated again. She was then operated on successfully by the nasosphenoidal route.

British Journal of Children's Diseases, London

October-December, 1919, **16**, Nos. 190-192

Poliomyelitis and Polioencephalitis. Report of Cases. E. Cautley.—p. 193.
*Sequel in Case of Lipodystrophia Progressiva. P. Weber, T. H. Gunewardene, and H. M. Turnbull.—p. 200.
School Dental Clinic. C. E. Wallis.—p. 204.
*Lymphangioma of Tongue. B. W. Howell.—p. 213.
*Case of Leukodermia and Melanodermia Associated with Leukonychia. H. C. Samuel.—p. 217.

Sequel of Lipodystrophia Progressiva.—It is claimed by the authors that this seems to be the first published post-mortem examination of a case of lipodystrophia progressiva. The patient, a girl, aged 13 years, was operated on for a purulent otorrhea. Soon afterward there developed a septic type of pyrexia. The patient died about three months after operation. In the sections of the scalp and abdominal wall, the only evidence detected of fatty tissue was the presence in the scalp of a few small areas which may have been occupied by fat cells. One of the sections of the suprarenal bodies included a little of the surrounding retroperitoneal tissue. Definite fatty tissue was present in this. In no section were there lobules of embryonic fatty tissue such as are found in the fetus, and in infants during the first and even second year of life. No abnormality was detected in the ovary. In the suprarenal bodies there appears to be less lipoid than usual in the cortex. In the thyroid glands there was an excess of secretion of colloid. The authors consider it reasonable that such a pathologic condition of the thyroid was connected with the abnormality in the subcutaneous fat.

Lymphangioma of Tongue.—Howell's patient was only 6 years old. There was no family or personal history of disease. He gave a negative Wassermann reaction. He had congenital nevus of the lower lip, which involved the mucous membrane of the gum. This got fuller when the child cried,

and bled occasionally. The swelling of the tongue was first noticed when the child was 3 years of age. It commenced on the posterior aspect and had grown forward slowly. It became stationary, vesicles continually broke down and ulcerated, causing pain, and on that account the boy bolted his food, which was always minced. He ate most things and took a rather large amount of salt, of which he was fond, but avoided sauces. Occasionally, the tongue was enlarged without apparent cause, and protruded from the mouth. It was then excessively painful, and was a source of anxiety to the patient and his parents. Salivation was excessive and articulation impaired. The tonsils were much hypertrophied, the submaxillary lymphatic glands were much enlarged, and the submental glands were palpable.

Case of Leukodermia and Melanodermia Associated with Leukonychia.—A boy, aged 6 years, presented in the left lower costal and lumbar regions a melanodermic sheet on which were small leukodermic spots arranged in lines. On his nails were some early spots of leukonychia. The elder brother also exhibited the early stages of leukonychia striata on several of the finger nails. The father had recently developed well marked leukodermia and melanodermia at the angle of his lower jaw, and some leukonychia of his fingers. The father's brother had every well-marked leukonychia striata of all his finger nails.

British Medical Journal, London

Feb. 7, 1920, **1**, No. 3084

Flail Joints and Their Treatment. R. Jones.—p. 175.
*Tumors Complicating Pregnancy, Labor and the Puerperium. H. R. Spencer.—p. 179.
*Penetrating Wound of Chest; Thoracotomy; Suture of Pericardium. J. B. Haycraft.—p. 184.
Acute Intestinal Obstruction Due to Pregnancy in a Bicornuate Uterus. C. E. S. Jackson.—p. 185.
Antistreptococcic Serum in Puerperal Fever. O. Hilton.—p. 185.
*Simple Treatment of Ringworm of Nails. R. Craik.—p. 185.
Mode of Infection in Pulmonary Infection. T. Campbell.—p. 185.

Tumors Complicating Pregnancy, Labor and Puerperium.—It is Spencer's belief that the great majority of cases require only careful supervision during pregnancy, periodical examination of the urine, rest, mild aperients and anodynes if the tumors become painful. Induction of abortion, premature labor and forcible delivery past obstructing tumors are contraindicated. Forceps may be required for inertia but should never be used to overcome resistance caused by tumors. Craniotomy and embryotomy are called for only in cases in which the fetus is dead and the mother not affected. Polypi and pedunculated subperitoneal tumors should be removed. Vaginal myomectomy may be required for cervical fibroids, but should not be performed for retrocervical tumors. Abdominal myomectomy is rarely needed, and usually only for very large or twisted or necrobiotic tumors. It not infrequently leads to abortion and to hysterectomy in order to stop the hemorrhage from the bed of the tumor, and it often fails to remove all the tumors present in the uterus. Before performing myomectomy, as also before conservative cesarean section, the tumor should be examined bacteriologically, and if it is infected, the whole uterus should be removed. Hysterectomy during early pregnancy, in the absence of hemorrhage or infection, is rarely called for. Conservative cesarean section is rarely indicated by the fibroids alone, but may be performed when fibroids are associated with contracted pelvis or malpresentations of the child, especially in elderly primiparae. In the case of a single myoma, it might be possible to remove the myoma and child through the same incision. In the puerperium, vaginal myomectomy is usually the best treatment for submucous tumors even when they are infected or invert the uterus. It should usually be tried before resorting to hysterectomy, which Spencer has never found to be necessary. In infected subperitoneal or intramural tumors total abdominal hysterectomy should be performed.

Penetrating Wound of Chest: Thoracotomy: Suture of Pericardium.—Haycraft regards his case as of interest as throwing light on the question whether it is necessary to close a large traumatic communication between the pericardial and pleural cavities. He was obliged to suture a tear in the right lung at the lower part of the junction of the anterior and basal borders, with fine linen thread, and a tear in the pericardium about 2 inches in length from above downward, through which was protruding the right auricular appendix and part of the right auricle. This was closed by a continuous suture of fine linen thread, but with considerable difficulty, owing to the extremely rapid beating of the heart and the attempts of the auricular appendix to get outside the pericardium at each beat.

Treatment of Ringworm of Nails.—In the two cases cited by Craik, the disease had existed for months in one patient, for years in the other. They were given a lotion consisting of 1 dram of salicylic acid in 1½ ounces of methylated spirit, to be painted on after scraping every night, and without scraping every morning, and to be used for three months or longer. Both patients were cured.

Japan Medical World, Tokyo

*Modified Silver Method of Staining Cilia and Spirochetes. K. Imai and H. Hidaka.—p. 57.
Nature of Hematemesis. K. Yoshida.—p. 57.
Absorption of Stains by Vital Embryonic Tissues, Special Reference to Carmine and Allied Stains. K. Kiyona.—p. 58.
Transplantation and Growth of Poultry Tumors, Especially Their Transplantation to Wing Bone. T. Kato.—p. 58.
Influence of Opium on Experimental Sugar in Blood. Furukawa and Ueci.—p. 58.

Modified Silver Method of Staining Cilia and Spirochetes.—Hidaka makes use of silver in the form of an ammonium salt. Not only the cilia of the typhoid becilli and allied bacteria, but also soirochetes and the cilia of cholera vibrios take the stain very easily. The following solusions are employed: (A) 100 parts of a 10 per cent. acetic potassium solution; (B) 100 parts of a 3 per cent. phenol solution; 10 parts of tannic acid; (C) 20 parts of a 2 per cent. stibiokalium tartaricum. Solution A is put in a 200 c.c. flask and heated at 40 C. While heating, solution B is poured into the flask and heating is continued until the white precipitate is completely dissolved. Solution C is then added; a thick white precipitation occurs. This cloudy solution is the required macerating solution and may be used without being filtered. The solution thus obtained is stored in a brownish dripping bottle and is shaken before use. The residue is more efficacious than the filtrate. This residue may be desiccated and the dried substance may be employed by dissolving in water. This solution is poured over the entire surface of the smear to be stained, and is heated over the flame until vapor arises from the surface of the fluid, which becomes granular in appearance. Usually from one-half to one minute heating will effect this. Then the smear is washed with water. The ammonium silver is poured over the smear and heated; washed in water. Ammonium silver solution is prepared as follows: Ammoniac water is poured into a 3 per cent. silver nitrate solution enough to effect the dissolution of all the precipitate that is formed by the adding of the former for the first time. Then the 3 per cent. silver nitrate solution is dropped into the mixture until it turns cloudy. The mixture thus prepared is stored in a brown bottle. The bacterial bodies appear black and the cilia dark brown.

Journal of Tropical Medicine and Hygiene, London

Feb. 2, 1920, **23**, No. 3

The "Tenue" Phase of Plasmodium Vivax (Grassi and Feletti 1890). A. J. Chalmers and R. G. Archibald.—p. 33.
Three Cases of Filariasis in Which Intravenous Injections of Tartar Emetic Were Given. J. W. S. Macfie.—p. 36.
Ulcus Tropicum Treated with Tartar Emetic. A. Mei.—p. 38.

Lancet, London

Feb. 7, 1920, **1**, No. 5032

*"Bone Setting"; Practice and Results of Forced Movement. J. B. Mennell.—p. 297.
Dental Sepsis in Children. F. St. J. Steadman.—p. 303.
Pauchet's Method of Gastrectomy. I. MacDonald.—p. 308.
*Case of Hydatid Disease of Bone. C. E. Corlette.—p. 311.
War Edema in Turkish Prisoners of War. J. I. Enright.—p. 314.
Acute Glanders in Man. T. Hunter.—p. 316.
An Operation Under Difficulties. N. Crichlow.—p. 317.
*Four Cases of Intestinal Obstruction. A. C. Perry.—p. 318.
Case of Corneoscleral Cyst. H. H. Bywater and P. E. Gorst.—p. 319.

"Bone Setting" Forced Movement.—The whole subject of treatment of after-effects of injury, Mennell says, is interwoven with that of the administration of forced movement, and this in turn is intimately connected with the art of what is commonly known as "bone-setting," and until the time has come when the old teaching of absolute and prolonged rest after injury shall have been supplanted by Lucas-Championniere's doctrine of the scientific combination of rest with mobilization, the type of disability which fills the "bone-setter's" rooms will never disappear. The first golden rule in manipulation under anesthesia should, therefore, be that no further attempt at movement is to be made in any direction when once a definite adhesion has been felt to give way. If this rule is ignored, injury will inevitably be inflicted on the fibrous tissue which forms a large bulk of the muscles which oppose the movement. Movement in other directions may, however, be continued. Mennell discusses the choice of time anesthetic and technic, the general procedure and the movement used for individual joints in detail.

Hydatid Disease of Bone.—In Corlette's case hydatid cysts were found in the femur, the right pelvic bones and the thigh, reaching from the level of the upper end of the bone above nearly to the popliteal space below; between the spleen and the diaphragm, the top of the spleen forming its floor, and the under surface of the diaphragm forming its roof. The kidneys and liver were entirely free from any sort of hydatid growth or deposit. So was the left lung. But the right lung presented a very remarkable appearance. The whole of the apical part looked like marble, giving the impression that a series of small hydatid cysts were lodged beneath the pleural surface. At the lower margin of the upper lobe another hydatid mass could be seen, about the size of a pigeon's egg and elastic in consistency. This was incised and found to contain a densely packed mass of crumpled looking hydatid membrane, cutting like a solid jelly. No free fluid exuded from the section, and there was no sign of an enveloping mother cyst. The brain was not examined.

Cases of Intestinal Obstruction.—Perry cites a case of atresia of the small intestine discovered in a child eighteen hours after birth. The small intestine ended blindly. Enterostomy was performed but the child died after six hours. A second case was one of strangulated sciatic hernia in a woman, aged 27, who was eighteen weeks pregnant.

Medical Journal of South Africa, Johannesburg

August, 1919, **15**, No. 1

Principles of Psychanalysis and Modern Psychotherapy. H. Goodman. —p. 1.

September, 1919, **15**, No. 2

Trench Fever in Salonica and France. H. T. H. Butt.—p. 33.

October, 1919, **15**, No. 3

Medical Boarding of "Heart Cases." G. D. Maynard.—p. 57.
Case of Pseudohypertrophic Muscular Dystrophy in a Native. M. D. Utrecht.—p. 60.

November, 1919, **15**, No. 4

Case of Chronic Abscess Caused by Nocardia Foulertoni. A. Pijper. —p. 82.

South African Medical Record, Cape Town

Dec. 27, 1920, **17**, No. 24

*Agar: A Fluid Medium. A. Pijper.—p. 372.

Jan. 10, 1920, **18**, No. 1

Cases Treated by Roentgen Rays, Radium and Electrotherapeutics. de V. Hugo.—p. 4.
Poisoning of Cooper's Dip. P. H. Walker.—p. 12.

Agar: A Fluid Medium.—Pijper maintains that the so-called water of condensation found at the bottom of agar slants and on the surface of agar plates is not water and not merely the product of a process of condensation. This so-called water of condensation, Pijper says, ought to be called agar serum, and it is mainly the product of a process of secretion caused by the syneresis of the agar gel. The micro-organisms planted on the medium are bathed in this agar serum, which provides them with nutrient substances. Agar mediums, therefore, are not solid, nor simply liquefiable mediums, but they are fluid mediums, in which the production of the fluid available for the nutrition of the microbes proceeds very slowly and follows certain rules. The secretion of this serum, and the concentration of its constituents, and therewith the value of an agar medium from a bacteriologic point of view, are dependent on various factors, which ought to be investigated.

Archives Médicales Belges, Brussels

September, 1919, **72**, No. 9

War Gases. H. Frederieq.—p. 229. Conc'n.
*Serotherapy of Tetanus. M. Stassen and J. Voncken.—p. 255.
*Artificial Eyes in Antiquity. Van Duyse.—p. 262.
Clinical Examination in Disease of Nervous System. M. Molhant. —p. 27. Conc'n.

Serotherapy of Tetanus.—Stassen and Voncken emphasize that the fear of serum sickness and even the development of serum accidents should not deter from pushing the antiserum treatment in tetanus, both by the intraspinal and the subcutaneous routes, as in it lies the only hope of influencing the disease.

Artificial Eyes in Antiquity.—Van Duyse recalls that no authentic specimen of an artificial eye supposed to have been worn by a living person has been found in the excavations in Egypt. But the marble and glass, terra cotta and enamel eyes found in mummies and in funeral masks are indirect testimony in favor of the ancient Egyptians having known and used prostheses for the eyes, as they were so particular about their appearance.

Bulletin Médical, Paris

Jan. 17, 1920, **34**, No. 3

*Vaccine Therapy of Osteomyelitis. R. Grégoire.—p. 41.
Clinical Examination of the Constipated. J. Génévrier.—p. 42.

Vaccine Therapy of Acute Staphylococcus Osteomyelitis.—Grégoire warns that time should not be wasted on vaccine therapy when septicemia has undetermined the system so that it is unable to respond to the stimulus of the vaccine. Even when the general aspect is good, he does not persist with the vaccine if the fever does not show signs of abating in forty-eight hours. The abscess should not be opened, as this invites secondary infection. Even very large swellings subsided completely under the vaccine treatment; in three cases he punctured to relieve the distention. His experience has not indicated that any better results are obtained with large doses than with small, while there may be disagreeable reactions to the larger doses, especially on the part of the heart. The pulse always ran up, sometimes to 140 or 150, but without disturbing the patient, and it kept high for two, three or four days. He never ventured a new injection until the pulse had returned to its former rate. Nine cases of acute or subacute osteomyelitis have been treated in this way, beginning with a stock vaccine; sometimes the abscess was punctured two or three times before the final complete retrogression. Some of the patients recovered without hyperostosis, and it never amounted to much. From two to nine injections were given in the different cases, and the total of 400 millions was never surpassed. The cure was complete in five or six weeks and the general condition was far better than in the surgical cases.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 26, 1919, **43**, No. 38

*Congenital Senile Skin. G. Variot and Cailliau.—p. 1125.
*Spirochetal Jaundice with Rash. M. Garnier and J. Reilly.—p. 1128.
*Transfusion of Blood in Malignant Measles. E. Terrien.—p. 1134.
*Erosive Angina. P. Harvier and de Léobardy.—p. 1136.
*Malaria and Amebiasis. E. Job and L. Hirtzmann.—p. 1139.
Ouabain in Cirrhosis of Liver. H. Dufour and G. Semelaigne.—p. 1143.

Congenital Senile Skin.—Variot and Cailliau state that the corrugated senile skin in the case reported was noted at birth, while in cases of geromorphism that have been published by others, the senile aspect of the skin developed in the children later, after several years of a normal aspect.

Spirochetal Jaundice with Rash.—Garnier and Reilly say that a scarlatiniform rash preceded the jaundice in a case they relate. The young civilian recovered completely in

about a month. The urine contained the spirochetes, confirmed by inoculation of guinea-pigs but agglutination tests were negative. The differential diagnosis was difficult as the symptoms for five days were merely gastro-intestinal disturbance, fever, depression and myalgia, headache and herpes, and then came the rash. As this became generalized, the eyes showed the tendency to jaundice. There was no desquamation later, and the assumption of superposed scarlet fever has no basis.

Measles and Transfusion of Blood.—Terrien found that the infant of 13 months was developing a malignant form of measles. The rash lasted only one day, and the most vigorous measures, including mustard packs, failed to bring it out again. The child's strength was kept up with camphorated oil and daily glucose-epinephrin injections. The condition growing constantly worse, a subcutaneous injection was made the fifth day of 20 c.c. of whole blood from a brother who had had measles six months before. By evening the infant was playing in its bath, and he slept that night for the first time. The temperature began to go down, and by the next day the child was cured. Terrien emphasizes the rapid improvement after this plasma-therapy, the efficacy of the subcutaneous route for infants, and the fact that the antitoxins had persisted for six months in the donor. The subcutaneous route avoids the danger of the shock from intravenous administration, and it also renders unnecessary any preliminary testing of the donor's blood for hemolytic properties.

Erosive Angina.—Harvier has encountered three cases recently which do not fit into the frame of any known type of sore throat. The infectious process affected only the anterior pillar, and only on one side. The oval lesion is more an erosion than an ulceration, and there is no false membrane formation, but the onset is febrile and stormy, and the glands nearby show slight congestion. The lesion does not spread, but it lasts for three weeks and then subsides, regardless of the local measures applied. Bacteriologic tests showed cocci and an occasional staphylococcus.

Malaria and Amebiasis.—Job and Hirtzmann comment on the puzzling character of the sickness when amebiasis is associated with malaria. Proper treatment is extremely important as emetin will cure the one and quinin the other, or at least this will attenuate them, as a rule. In some cases, however, the intestinal or liver amebic disease complicated with malaria proves inevitably fatal.

Journal de Chirurgie, Paris

December, 1919, **18**, No. 5

*Minor Displacements of the Vertebrae. E. C. Cyriax.—p. 457.
*Tuberculous Lesions in Temporal Bone. Bellin, Alain and Vernet. —p. 486.
*Ligneous Phlegmons. S. Mercadé.—p. 499.
*Buried Shoe-Lace Suture. W. Dubreuilh.—p. 509.

Minor Displacements of Cervical Vertebrae.—Cyriax' experience with hundreds of cases of incomplete dislocation of the cervical vertebrae has confirmed its unsuspected frequency, and that it can occur without any symptom, although usually it causes more or less disturbance analogous to similar minor displacements in the bones and cartilages of the limbs. The pathology and the necessity for reduction and the technic for the latter are practically the same in all. The pain, stiffness, and inability to move the head may all disappear as compensation becomes established. In one of his cases there were no functional symptoms except change in the voice, rebellious to all treatment. Palpation in the dorsal position is most instructive. One transverse process in front, the other at the back, signifies rotation on the axis; one in front, with the other in normal position, signifies rotation with unilateral forward displacement. He lists the other displacements liable to be encountered, with radiograms of each, and four typical case histories. The displacement can generally be reduced by the appropriate maneuvers with little or no pain.

Tuberculous Lesions in Temporal Bone.—Bellin and his co-workers have encountered four types of tuberculous osteitis in the temporal region and ear, and cite a fifth type described by Bernard. They give an illustrated description of a case in each type: (1) latent tuberculous mastoiditis, often revealed by deafness; (2) tuberculous mastoiditis with necrosis, sometimes revealed by facial paralysis; (3) the same with fistulas; (4) chronic osteitis of the middle ear with hyperostosis of the mastoid, and (5) osteitis of the auditory meatus or of the scala tympani. The cases reported terminated fatally, the mastoid lesion being usually accompanied with tuberculous lesions elsewhere. The only exception is a case in which the outcome is not known although the immediate results of a radical operation were good. The lesion seemed to be limited to the external meatus and scala tympani, except where the condyle of the lower jaw had been touched by the osteitis. As a general rule, reliance must be on general measures until we can learn to detect these processes in their incipiency and remove the focus before there is extensive destruction.

Woody Phlegmon.—Mercadé is confident that some foreign body is the primary factor in a ligneous phlegmon. Medical measures have always failed, and there is scant hope for resorption until the tumor with its foreign body has been excised. The incision can be sutured at once and the cure is complete in a few days, unless the phlegmon has assumed such dimensions that its entire removal is impracticable. In the ten personal cases described, the phlegmon was on the thigh, forearm, buttocks or neck, and it had developed after a war wound.

Buried Shoe-Lace Suture.—Dubreuilh uses very fine catgut and an extremely curved needle, and sutures the deeper layers of the incision together, the course of the threads exactly like the lacing of a shoe. The stitches must be as close together as possible—less than 1 cm. apart—as the threads cross and recross each other. To ensure even coaptation he ties the threads together at every fourth or fifth stitch. In three or four of the 100 cases in which he has applied this shoe-lacing suture in operations on the face, the catgut was cast off; in a few others the lips separated anew but only for a short distance, thanks to the relay knots. On the other hand, the superficial sutures have sometimes suppurated, especially in operations on the mouth, but the buried shoe-lacing suture held. This suture is a little more tedious than others but it interferes less with the circulation, and has several other advantages for operations on the face.

Journal de Radiologie et d'Electrologie, Paris

November, 1919, **3**, No. 10

*Roentgen Treatment of Uterine Fibromyomas. Béclère.—p. 433.
*The Fluorometer. H. Guilleminot.—p. 440.
*Roentgen Treatment of Localized Tuberculosis. Cottenot.—p. 447.
*Roentgenoscopy of the Tender Points. M. Jaulin.—p. 455.
Gastrocolonic Fistula from Early Cancer. L. Nahan.—p. 458.
Diaphragmatic Hernia. M. Audan.—p. 460.
*The Pylorus with Duodenal Ulcer. E. Constantin.—p. 462.
Calculation of Depth of Foreign Body. M. Ozil.—p. 463.

Roentgen-Ray Treatment of Uterine Fibromyomas.—Béclère's communication supplements his previous one at the London medical congress in 1913. He now has a record of 500 cases of uterine fibromyomas treated by irradiation, and the interval since in 400 of the cases has been long enough for a decisive verdict. In 84.5 per cent. of the cases the fibromas projected into the abdomen from 1 to 30 cm. above the pubis. They began to subside in size even from the second or third sitting, shrinking about 1 cm. a week, but menstruation usually was not arrested under two or three months. In 60 per cent. of the total cases only twelve or fourteen sittings were required, so that the course took only from ten to twelve weeks, and the women continued their usual life all the time, and there was no suffering of any kind. The fibromas subside much more rapidly than at the natural menopause, so that the treatment must act on the tumors directly, as well as indirectly through the ovaries.

The Fluorometer.—Guilleminot's fluorometer determines the dose of the roentgen rays by the power of the rays to render fluorescent a small luminous screen.

Roentgen Treatment of Bone, Joint and Gland Tuberculosis.—Cottenot has been able to compile a long list of local tuberculous lesions which have been benefited by roentgen

treatment. It is still a question whether tubercle bacilli are destroyed by the rays, but there is general agreement that the cells of the tubercles are destroyed by them while proliferation of connective tissue is promoted. He deplores that notwithstanding the fine results realized from irradiation of bone and joint tuberculous processes during the last ten years, this treatment has not yet won the place that its efficiency and harmlessness deserve. It would avert the necessity for surgical measures and prolonged courses of heliotherapy. The best results have been realized to date with tuberculous processes in the small bones, as they are more accessible to the rays. He has cured many cases of processes in long bones and joints by combining roentgen irradiation with immobilization after evacuating pus and sequesters. The hip joint is almost beyond the reach of the rays; only Schede has reported two successful cases of coxalgia. Iselin has reported more than 800 cases of cured tuberculous osteoarthritis.

Roentgenoscopy of Painful Points.—Jaulin advises the roentgenologist to pay special heed to the tender points, and to outline them with a metal ring, as an important aid in the differential diagnosis.

Functional Insufficiency of the Pylorus with Duodenal Ulcer.—Constantin found that the pylorus allowed the contrast suspension to pass at once into the duodenum in six cases of duodenal ulcer. This insufficiency may be spontaneously manifest or can be induced by pressing on the prepyloric region. It may be latent and transient, but it seems to accompany duodenal ulcer often enough to have differential importance. In two other dubious cases, this insufficiency was not evident.

Presse Médicale, Paris

Jan. 21, 1920, **28**, No. 6

*Internal Treatment of Psoriasis. R. Sabouraud.—p. 53.
*Ulcerating Mouth and Throat Lesions. David and Hecquet.—p. 54.
Angina Pectoris. R. Benon.—p. 56.

Internal Treatment of Psoriasis.—Sabouraud affirms that the treatment of psoriasis has entered on a new era of late with the discovery that certain measures which have nothing in common, except that they all give a kind of shake-up to the organism, are proving effectual in certain cases, although not in all. The list includes injection of mercurial salts, of antitoxic serums, and of emulsions of killed microbes from the patient's stools. There is hope that still more effectual means of inducing the shake-up or shock may yet be found. The field of experimentation seems immense and almost unlimited. Danysz' enterovaccine from the stools seems to be harmless, and great improvement under it seems to occur in more cases and to last longer than with any other measures yet known.

Ulcerative Lesions in the Mouth.—David and Hecquet write from Roumania to tell of their finding Vincent's fusiform bacilli in ulcerating lesions in the mouth and pharynx, which at first were ascribed to the prevalent scorbutus. In a recent twenty days, they encountered twelve cases of Vincent's angina. Glycerin solutions of arsenobenzol have proved useful.

Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil

November, 1919, **10**, No. 11

*Pulsating Exophthalmos. P. Gomes.—p. 241.
Therapeutics in 1918. C. Ferreira.—p. 247.

Ligation of Carotid for Pulsating Exophthalmos.—Great improvement followed ligation of the right common carotid to control an arteriovenous aneurysm of the internal carotid, communicating with the cavernous sinus, and entailing pulsating exophthalmos. Gomes adds that the latter was only attenuated by the treatment, but the other symptoms subsided.

Archivos Brasileiros de Medicina, Rio de Janeiro

September, 1919, **9**, No. 9

*Abnormal Forms of Appendicitis. A. Possollo.—p. 707.
*Sugar Treatment of Pulmonary Tuberculosis. Ramiro Magalhães.—p. 736.

Abnormal Forms of Appendicitis.—Possolo reviews the unusual clinical picture that may be presented when the appendix is not in its normal place but is pushed to the left or is involved in a hernia or is adherent to pelvic organs, etc., or some infectious process elsewhere modifies the symptoms, or a tumor, constitutional disease, tuberculosis or actinomycosis may modify it, or the age may affect it, as when appendicitis develops in the infant or the aged. He remarks that while the diagnosis of appendicitis is not always easy under the most normal conditions, it is sometimes almost impossible under some of those just described. He has found the Abderhalden reaction a valuable aid in certain puzzling cases; in one, the presence in the blood of the special appendicular ferments gave the clue to the disease, confirmed by the operation. In another case the negative findings were confirmed by the operation which revealed right salpingitis. In a third, the positive findings conflicted with the presumptive diagnosis of colitis, but time proved the Abderhalden findings the correct ones. In a fourth case the findings were still positive two months after the appendix had been removed. Mariaute's experience has also confirmed that abnormal cases of appendicitis can be elucidated and confirmed by the Abderhalden reaction. In one case described in detail the young woman for two years had been having intense pain in the right iliac fossa at each menstrual period, but was free from pain during the intervals. It was so severe in the right hip and leg that she could not use them while it lasted. Possollo incriminated the appendix, and it was found pathologic, with a grape stone in it. In another case the septicemic appendicitis showed no local symptoms, no digestive disturbance, nor rigid abdominal wall. The only symptoms were those of acute nephritis, pain in the lumbar region and blood in the urine.

Sugar Treatment of Tuberculosis.—Ramiro Magalhães applied Lo Monaco's method of injections of sugar solution in forty-eight cases of pulmonary tuberculosis with negative results.

Archivos de Ginecopatía, Obstet. y Ped., Barcelona

July, 1919, **22**, No. 7

*Ophthalmia Neonatorum. F. Vidal Solares.—p. 149.
*Pubiotomy in Extreme Case. A. Agustí Planell.—p. 153.

Prophylaxis of Ophthalmia Neonatorum.—Vidal emphasizes the necessity for laws in Spain making compulsory the disinfection of the eyes of the newly born, and other measures for collective prophylaxis of blindness.

Pubiotomy in Extreme Case.—The rachitic lumbar kyphosis and anteflexion of the uterus, with transverse diameter of only 8 cm., were combated by pubiotomy and stretching the severed bone apart for 6 cm. The child was safely delivered and the wound healed with only a slight febrile reaction. Fifteen days after delivery an apical tuberculous process became manifest and rapidly spread through the lungs, with death the fortieth day after delivery.

Brazil-Medico, Rio de Janeiro

Nov. 15, 1919, **33**, No. 46

*Case of Actinomycosis. O. Torres.—p. 361.

Cervicofacial Actinomycosis.—The lesions in the case reported by Torres were on the face and neck of a working man of 43, the third case of actinomycosis he has encountered. As in the other cases, the diagnosis had been cancer at first. Treatment with sodium iodid and arsphenamin has been begun.

Dec. 6, 1919, **33**, No. 49

*Ichthyosis. Werneck Machado.—p. 385.
Epidemic Poliomyelitis in Uruguay. V. Escardo y Anaya.—p. 389.
Cont'n.

Ichthyosis.—Werneck Machado gives an illustrated description of three cases of ichthyosis in children now under treatment in his service. He knows of only five other cases in Brazil. Two of his own three cases are brother and sister, and others tell of cousins with the same trouble. In two of these eight Brazilian cases the infants were 2

and 4 months old, but one patient is a young man. The parents were cousins in one case, and inherited syphilis was evident in two others. In treatment, besides the general tonics and special measures, efforts to rouse the skin to better functioning are indicated, and among these he commends in particular jaborandi and its alkaloid, pilocarpin. Fox ascribes to thyroid treatment the recovery in his case. Polyglandular treatment might prove more effectual in other cases. Great improvement was realized under mercury and potassium iodid in one child with a syphilitic father. In addition to other external measures, steam baths and Russian baths have proved useful.

Crónica Médica, Lima, Peru

October, 1919, **36**, No. 676

*Bacillary Dysentery in Peru. E. Escomel.—p. 339.
*Urinary Calculi. C. Morales Macedo.—p. 342.
*Pathogenesis of Delirium Cordis. M. Arias Schreiber.—p. 350.
Forensic Case of Oxalic Acid Poisoning. L. Avendaño and M. A. Velásquez.—p. 353.
*Case of Hirschsprung's Disease. E. P. Manchego.—p. 359.

Bacillary Dysentery in Peru.—Although Escomel has made it his routine practice for fifteen years to examine the stools in cases of dysentery, he never found any bacilli that could be incriminated except in an epidemic of dysentery at Yura in 1917, and this did not spread beyond the limits of the town. The dysentery proved amenable to the treatment which has yielded such constantly good results in trichomonosis by his technic. His method has been described in these columns, May 17, 1919, p. 1501. It consists essentially in three enemas daily composed of 15 or 20 drops of oil of turpentine emulsioned with the yolk of one egg and 60 gm. of distilled water, and from 5 to 20 drops, according to age, of laudanum. Each enema is retained as long as possible. An astringent, bismuth salicylate, and camphorated tincture of opium are given by the mouth, with hot applications to the abdomen every two hours. The prompt recovery under this combined treatment seems to indicate that these bacilli live in the rectum, as a rule. The liver returned to normal as the other symptoms subsided, which testifies that the liver complications are of toxic origin, the hemorrhoidal veins providing a ready means of access for the toxins from the rectum. Escomel was recently awarded a prize by the Académie de médecine at Paris for his notable contributions to the knowledge and treatment of tropical diseases.

Operative Indications for Calculi in Kidneys or Ureters.—Morales reviews nine different conditions that may be induced by renal lithiasis, and the indications with each. As general contraindications he cites syphilis and tuberculosis, which should be given treatment before operating for stone, outside of emergency cases. The operation also should be postponed with gonorrheal arthritis, or very violent gonococcus infection of any kind. The temperature and lack of any recent great loss in weight are also instructive. The heart, blood pressure, blood count, etc., should never be neglected, and with very nervous patients, it may be advisable to delay the operation until a course of psychotherapy has been given.

Delirium Cordis.—Arias presents evidence to show that fibrillation may be of nervous origin in some cases. This explains the cases in which the general condition keeps good, notwithstanding the permanently irregular pulse.

Megacolon.—Manchego's patient was a man of 38 and the Hirschsprung disease was not recognized until the abdomen had been opened by an exploratory laparotomy.

Medicina Ibera, Madrid

April 26, 1919, **7**, No. 77

Traumatic Shock. E. Diaz y Gómez.—p. 61. Cont'n.
Syphilitic Facial Paralysis. Miguel F. Criado.—p. 63.
The Manic-Depressive Psychoses. R. Alvarez Salazar.—p. 64.
Nervous Disturbances in Children. H. Rodriguez Pinilla.—p. 78. Conc'n.

Dec. 6, 1919, **9**, No. 109

Auscultation of the Pulse. A. Crespo Alvarez.—p. 179.
Expulsion of Giant Gallstone. Santiago Carro.—p. 179.

Prensa Médica Argentina, Buenos Aires

Nov. 30, 1919, **6**, No. 18

*Treatment of Fractured Leg. A. F. Celesia.—p. 181.
*Liver Tumor in Infant. Casaubon and Bacigalupo.—p. 183. Conc'n.
*Psychology of Aphasia. Enrique Mouchet.—p. 187.
*Wiring of Aneurysm. Nicolas Tagliavacche.—p. 189.

Fracture of the Tibia.—Celesia is delighted with the results obtained in twenty cases with a light plaster cast applied to allow free use of the knee and ankle after fracture of the tibia. The patient could walk about while the fractured bones were healing under the immobilization, the plaster collar above and below fitting against the tuberosities of the tibia and the malleoli. The patients are walking by the second or third day, and the muscles keep well nourished and strong.

Liver Tumors in Infants.—Casaubon and Bacigalupo report a liver tumor in a 10 months babe. Several photomicrographs are given, and 33 cases of neoplasms in the liver in children are tabulated as compiled from the literature, and 11 cases of metastatic liver cancer. The primary tumor was in the right kidney in 4; in the left in 5, and in the pancreas in 2. In one infant of 2 months a sarcoma had developed in both liver and suprarenal at the same time. These cases supplement the 28 compiled by Steffen.

The Psychology of Aphasia.—Mouchet describes a case of aphasia in a man of 63 and lists sixty-six titles on the psychology of aphasia.

Wiring an Aneurysm.—Tagliavacche gives an illustrated description of an aneurysm of the descending aorta in which marked improvement followed wiring, introducing 21 meters of copper wire. The patient is a man of 64 in such a grave general condition that long survival is not to be expected.

Dec. 30, 1919, **6**, No. 21

*Chronic Mediastinitis from Tardy Inherited Syphilis. M. R. Castex and J. J. Bereterviде.—p. 213.
*Chronaximeter. V. Tedeschi.—p. 217.
Influenza Bacillus Meningitis in Infant. J. P. Garrahan and C. Gourdy.—p. 220.
Arrhythmias. P. M. Barlaro.—p. 221. Continuation.

Chronic Mediastinitis from Tardy Inherited Syphilis.—Castex and Beretervide say that chronic mediastinitis of syphilitic origin in children has been well studied and also from acquired syphilis in adults, but they do not know of any case like the one they describe in a man of 28 in which there were other manifestations of inherited syphilis, and the mediastinitis was a recent tardy development. The compression of the vena cava dominated the clinical picture. The slow but progressive improvement under specific treatment showed that the trouble was from gummas rather than from irreparable sclerosis.

Electric Device for Electrodiagnosis.—Tedeschi gives an illustrated description of his apparatus which, he says, avoids the errors of other chronaximeters and similar apparatus. The current passes merely during the impact of two elastic balls.

Semana Médica, Buenos Aires

Nov. 6, 1919, **26**, No. 45

*Ankylosis of the Knee. J. M. Jorge.—p. 539.
*Poisonous Anise. J. V. Negrete and C. F. Velarde.—p. 554.
*Percutaneous Tuberculin Treatment. S. de Madrid.—p. 565.
*Cyst in Infant's Spleen. J. Bacigalupo and A. Grosso.—p. 576.
Resolutions Adopted by Argentine Tuberculosis Congress.—p. 578.
*Eugenics. L. Mathé.—p. 581.

Ankylosis of the Knee.—Jorge gives roentgenograms of ten cases of ankylosis calling for surgical treatment. He warns that it must not be forgotten that the tissues around the joint are less resistant than normal, and cannot stand much pressure. He warns further that typical resection of a joint should not be done on a child either for arthritis or ankylosis. One of the illustrations shows the irreparable damage done by resecting the knee for a tuberculous process at the age of 14. Jorge reiterates that the epiphyseal cartilage should always be held absolutely sacred and left unmolested.

Toxicity of Japanese Star Anise.—Negrete and Velarde have been studying samples of *Illicium religiosum* which had caused sickness in a number of children. It is evidently a poison for the central nervous system, inducing in all the

laboratory animals tested periodical or subcontinuous convulsions and paresis. The symptoms are so typical that it might prove useful as a drug for biologic tests.

Tuberculin Treatment by the Percutaneous Route.—De Madrid has given this treatment in hundreds of cases and here defines its indications and contraindications, and extols its importance as an adjuvant to other measures.

Cyst in Spleen.—The cyst was found in an infant cadaver, the child having died from bronchopneumonia. No symptoms had called attention to the spleen.

Eugenics.—Mathé defines eugenics as applied physiology and biology extended to include collective life. Physicians must take the lead in the new science, he declares, but they must secure the cooperation of sociologists and legislators. Eugenics is closely connected with the fight against alcohol and overcrowding, tuberculosis, and syphilis.

Siglo Médico, Madrid

Dec. 20, 1919, **66**, No. 3445

Incontinence of Urine in Children. F. González Aguilar.—p. 1097. Conc'n in No. 3446.
*Epidemic Poliomyelitis. G. Hurtado.—p. 1101.

Epidemic Poliomyelitis.—Hurtado has applied in a number of cases of advanced poliomyelitis, treatment by light, heat and repose according to the method advocated by Flexner and Lucy O. Wight. The details of a few typical cases are given, the paralyzed children regaining the use of their limbs, although some still tire easily and there is a little atrophy of the members. But even in these, the condition is immeasurably improved.

Berliner klinische Wochenschrift, Berlin

Nov. 3, 1919, **56**, No. 44

*Radiotherapy in Erythremia. Forschbach.—p. 1034.
*Staining of Guarnieri's Bodies. E. Hesse.—p. 1035.
*Kidney Function in Diabetic and Postdiabetic Conditions. P. Weil.—p. 1037.
*Pleural Tumors. E. Kornitzer.—p. 1039.
Critical Studies on Malaria and Staining Technic. H. Simons.—p. 1041. Begun in No. 43, p. 1009.
Proposed Reforms in Medical Course. O. Lubarsch.—p. 1044. Conc'n.

Exceptionally Long Roentgen-Ray Treatment Finally Successful in Case of Polycythemia.—Forschbach reports a case of erythremia that required an unusually long period of roentgenotherapy before the cure was finally realized. The patient, a man of 61, was admitted to the hospital in 1912, complaining of pains in the epigastrium, dizziness and rush of blood to the head. The findings in May, 1912, were: cyanotic appearance of the face; mild peripheral arteriosclerosis; enlargement of the spleen and liver; blood pressure, 165; erythrocytes, 6,000,000. The diagnosis was the hypertonic form of erythrocythaemia rubra. By July, 1916, his condition had grown much worse. At times, on account of dizziness, the patient could not walk alone. The erythrocyte count now varied from 7,000,000 to 12,500,000; hemoglobin was from 100 to 150 per cent.; the white cell count was from 10,700 to 13,600; the urine contained, from time to time, albumin and casts. Venesection brought no relief. July 22, 1916, deep roentgen irradiation of the long bones was begun. The irradiation period usually covered eight days, and was followed by a week's rest, at first; later, the intervals depended on the appearance of the blood picture. The first two periods of treatment had no effect whatever on the blood picture, so the treatments were discontinued, although the patient himself protested that irradiation had brought subjective relief. In the meantime Forschbach's attention was called to the case of Tancré, in which a reduction of the red corpuscles from 14,200,000 to 6,600,000, and of the hemoglobin from 175 to 163 per cent., was brought about. Forschbach was thus encouraged, after the lapse of a year, to recommence treatment in September, 1917. The long bones were treated in the same manner as before, but with longer pauses. Not until after the eighth period of treatment, given from April 9 to May 11, 1918, did the red cell count begin to fall rapidly. By Sept. 13, 1918, it had fallen to 3,300,000 and the hemoglobin to 62 per cent. The treatments were discontinued and by April 23, 1919, the red cell count was 4,796,000 and the hemoglobin 90 per cent. There was also very great improvement in the subjective symptoms. For duration of treatment Forschbach thinks that his case surpasses all reported thus far. He warns that an exceedingly careful control of the red and white cell count must go hand in hand with the use of roentgenotherapy in erythremia in order to avoid serious leukopenia. Premonitory lowering of the white cell count is an indication to lengthen the intervals of rest between the exposures to the rays.

Staining of Guarnieri's Bodies.—Hesse has been trying to improve on previous methods of staining Guarnieri's bodies (vaccine bodies arising in the corneal epithelium of rabbits inoculated with vaccine lymph). He sought a quick method by which only the Guarnieri bodies would be stained, the cell nuclei, leukocytes and the products of cell degeneration remaining unstained. In preparing his stain he used 10 c.c. of a saturated alcoholic solution of cresyl-fast violet (Grübler) added to 90 c.c. of a 5 per cent. phenol solution. The stain is thoroughly mixed and filtered, and can then be used at once. After the slides have been washed with xylene to remove the paraffin, and the xylene has been removed by means of absolute alcohol, the sections are stained for from fifteen to twenty minutes with the cresyl-fast violet; and, without being rinsed in water, a fresh 2.5 per cent. aqueous solution of ammonium ferric sulphate is used as a mordant. The slides are now rinsed in distilled water and are put for differentiation in a 60 per cent. aqueous solution of acetone. The differentiation requires from twenty to thirty minutes, and, until one is thoroughly experienced, should be observed under the microscope. Thus the moment when the cell nuclei and leukocytes have given off the last bit of stain may be ascertained; while, it will be noted, Guarnieri's bodies are distinctly differentiated by a rather dark violet hue. Hesse's investigations with the above described stain lead him to the conclusion (which he considers important) that Guarnieri's bodies are not derived from the nuclei of leukocytes or epithelial cells. The fact that Guarnieri's bodies have entirely different staining characteristics, together with their peculiar structure, indicates, Hesse thinks, their specific origin.

Kidney Function in Diabetic and Postdiabetic Conditions.—Weil distinguishes three forms under which albuminuria may be combined with diabetes: (1) A harmless albuminuria, associated with glycosuria and receding with the disappearance of the sugar, or with the decrease of the high sugar content (saccharogenic albuminuria so called); (2) albuminuria caused by a complicating arteriosclerosis or arteriolosclerosis (diabetic nephrosclerosis), and (3) albuminuria produced by genuine nephritic processes (diabetic nephritis or nephrosis). He states that recent progress in the examination of diabetics has made possible a closer differentiation between benign and malignant forms of nephrosclerosis. He thinks, therefore, that in diabetic nephrosclerosis kidney function tests should be made more frequently than has been done in the past. Often the functional activity will be found to be the same as in simple nephrosclerosis, so that, for the time being at least, the prognosis is more favorable than it would otherwise appear. In other words, from the diagnostic and prognostic standpoint, diabetic nephrosclerosis may be viewed in much the same light as nondiabetic nephrosclerosis.

Myoma of the Pleura.—Kornitzer was unable to find in the literature any descriptions of pleural myomas, as in a case reported. His patient, a man, aged 40, was admitted to the hospital, July 27, 1917. Examination revealed dulness over the right thorax, and respiratory and vocal fremitus could not be elicited. Subfebrile temperatures were noted. Puncture revealed hemorrhagic fluid. The diagnosis was hemorrhagic pleuritis. The disease took a rapid course. August 13, pleural puncture was done and one-half liter hemorrhagic fluid was removed. August 16, the patient died. Necropsy revealed a poorly nourished but strongly built man. On loosening adhesions of the left lung, a round, apple-sized tumor of tough, elastic consistency was found on the posterior surface of the inferior lobe. The tumor,

which Kornitzer calls a fibroleiomyoma, was enclosed in a hard capsule. There were no very firm adhesions between the tumor and the surrounding tissues, but it was attached to the lung by a fibrous strand. This fibrous strand and the free surface of the tumor were covered with pleural endothelium, which was connected with the endothelium enveloping the lung. At the cut surface the tissue was grayish yellow. In the center of the tumor were cavities as large as a cherry, though not sharply outlined. In the right pleura an endothelioma was found, from which, besides numerous other metastases, one of microscopic size had developed in the above described fibromyoma. Kornitzer thought, at first, that the subpleural tissue might perhaps be assumed to be the point of origin of the fibromyoma, but he found in the textbooks on comparative anatomy and embryology no reference to smooth muscle fibers occurring in the pleural tissue. He thinks, therefore, that we must assume that muscle cells, cast off from the walls of blood vessels, constituted the tissue from which the tumor took its origin.

Münchener medizinische Wochenschrift, Munich

Nov. 7, 1919, **66**, No. 45

*The Spring Apex of Tetany. E. Moro.—p. 1281.
*Treatment of Surgical Tuberculosis. E. Kisch.—p. 1283.
*Urology and the General Practitioner. F. Schlagintweit.—p. 1284.
*Human Fat (Humanol) in Surgery. F. Loeffler.—p. 1290.
*Extirpation of Enlarged Spleen. F. Kleeblatt.—p. 1291.
*Gangrene of the Bladder Following Carcinoma Operation. H. Hisgen.—p. 1292.
*Treatment of Old Ulcerating Wounds. R. Pürckhauer.—p. 1293.
Splint for Fractured Radius. Asam.—p. 1293.
So-Called Ulcer Carriers. G. B. Gruber.—p. 1294.
*Abuse of Phenolphthalein. L. Schliep.—p. 1294.

The Spring Peak of Tetany.—Moro's curves confirm the seasonal prevalence of tetany, its gradual increase during the fall and winter months, to its apex about March, when it falls sharply, and then drops off more gradually until midsummer. In adults with a tendency to tetany, as spring approaches, the skin of the hands often feels dead or leathery. Moro connects these facts with the markedly increased irritability of the vasomotor nerves and the vegetative nerve system, and with the increased activity of internal secretions that regularly occur in spring. He adds, "It has been said, 'Night is the time of the unstriated muscle,' and the awakening of the instincts in the animal kingdom shows that it can be said likewise, 'Spring is the time of the internal secretions.'"

Treatment of Surgical Tuberculosis.—The conditions of the war period in Germany, Kisch says, have caused not only a deplorable increase of tuberculosis, but the disease appears also in more serious forms. In surgical tuberculosis, the patients usually have, either simultaneously or consecutively, several foci of infection, often as high as seven or more, and they are characterized by profuse suppuration. The large number and wide extent of the foci, together with the weakened general condition of the patients, and their vast numbers, make it impossible to apply operative measures in all the cases of tuberculosis of the bones, joints, and glands. Kisch employs heliotherapy (natural and artificial) aided by passive hyperemia, and administers sodium iodid. As regards tuberculin treatment, he thinks it will, when used alone, effect a cure only in selected cases. He himself has effected cures by its exclusive use in spina ventosa and scrofuloderma in children, and beginning soft swellings of the lymphatic glands have disappeared. Heliotherapy is applicable to all cases. Kisch states that in the sanatorium associated with the Berlin university surgical clinic, in the majority of cases, immediately after a tuberculous focus has cleared up, or even before, tuberculin treatment is instituted to prevent new foci. Occasionally, because of unfavorable reactions, further tuberculin treatment is contraindicated. Under heliotherapy as described by Kisch, patients with unusually severe tuberculosis of the joints have been cured, and a normal, or at least adequate, function of the joints has been restored. A number of patients over 50 and even 60 years old, with severe tuberculosis of the spine, have been cured. Patients with severe tuberculosis should always be treated in sanatoriums far removed from large cities, where they can get the maximal benefit from sunlight and fresh air. Mild cases may be treated in sanatoriums located at the edge of large cities, so that patients, if necessary for financial reasons, may continue to follow their calling.

Urology and the General Practitioner.—This six-page article is made up of material used by Schlagintweit in a graduate course of lectures. He regrets that most general practitioners have never taken a thorough course in urology. By the average practitioner the kidneys are looked on and studied as one connected organ, whereas the urologist carefully considers the function of each kidney separately. He says that 33 per cent. of all chronic, suppurative processes of the urinary apparatus are of a tuberculous nature. The presence of white corpuscles in the urine is the most significant urinary symptom. Pollakiuria in the daytime, but not at night, can be only of nervous origin, especially if micturition is not painful or difficult, for any inflammatory irritation or congestion of the bladder or the region of the vesical sphincter will awaken the patient at night by the desire to urinate. Under such conditions, when the bladder fills to a certain degree, it manifests itself as regularly as an alarm clock. In the case of an old man, frequent desire to urinate at night, provided he has to strain and wait for the flow to begin, or has to walk around a while first, may be taken as a sign of hypertrophy of the prostate. The cardinal urologic symptoms which Schlagintweit regards as indicating the urgency of a thorough instrumental diagnosis and therapeusis, possibly necessitating local or general anesthesia are: (1) acute retention of urine; (2) unendurable pain, especially colicky pain; (3) fever; (4) total anuria; (5) chronic uremia; (6) rapid emaciation, and (7) severe hemorrhage. Aside from the foregoing indications, all urologic diseases may be profitably treated by rest in bed, application of heat and the administration of mild narcotics, for two or three weeks, until the true condition of affairs can be cleared up. Urologic diseases, especially those of the lower urinary passages, that do not clear up promptly following rest in bed, are usually due either to some mechanical cause or to some pathologic condition of the upper urinary passages; for example, a cystitis arising from a pyelitis or prostatitis. We must never assume that a pyelitis that has existed for years is incurable without considering that the condition may be unilateral, and that it may be cured by unilateral nephrectomy.

Value of Fluid Human Fat (Humanol) in Surgery.—This article is a preliminary report of Loeffler's experimental use of humanol (fluid human fat) in surgery. He has been using humanol for three years and it has given excellent results. Humanol is obtained from the fatty tissue secured in connection with operations (abdominal fat, lipomas, etc.). All connective tissue is removed, and the fat is then heated for three hours over a water bath and filtered. Only the fat of healthy persons is used. Good results were secured by using humanol for the isolation of tendons and nerves from adhesions, and to prevent the formation of new adhesions. After the tendon or nerve has been removed from surrounding adhesions and all hemorrhage has been stopped, the wound is closed, leaving a pinhead opening just large enough to admit the tip of the syringe. The suture is drawn tighter, the humanol is injected, and the suture is then tied. Light effleurage spreads the humanol around. The wound heals well, and the cicatrix is soft and elastic. In numerous tendon transplantations on the foot, in infantile paralysis, humanol was used, and there were no disturbances caused by adhesions. In hand and finger injuries humanol found its widest application. Loeffler has not been able to discover that humanol softens scars as claimed by Wederhake. In joint injuries (arthritis deformans, arthrogenous contractures) it was found useful. Iodoform glycerin had come to be regarded as most valuable in treating the rapidly increasing number of cases of tuberculosis of the bones and joints. But glycerin became scarce and was of poor quality. Then again, a high fever was often caused by the injection of small quantities of iodoform glycerin. Accordingly, Loeffler used 5 or 10 per cent. "iodoform humanol," injections of

which gave exceptionally good results. Iodoform glycerin has therefore been discarded. As humanol is absorbed within from five to seven days after subcutaneous injection, Loeffler cannot recommend its use for plastic purposes. If mixed with animal and vegetable fats (e. g. tallow), the humanol is absorbed, while the other ingredients are left as a foreign body.

Indications for Splenectomy.—Kleeblatt states that the spleen is being removed nowadays in all sorts of cases, without very clear indications therefor. However, after other forms of treatment have failed, tumors of the spleen, associated with kala-azar and malaria may justly be removed for mechanical reasons; for example, on account of rupture or too great size. Now that we assume that leukemia is a systemic disease affecting the lymphatic glands and the bone marrow, and that the enlargement of the spleen is only an accompanying phenomenon, the failures following extirpation of the spleen should no longer cause surprise. Removal of the spleen for polycythemia is not indicated, for the reason, he says, that the disease, though it has various etiologic factors, has nothing to do with the spleen. Küttner and others have reported cases of polycythemia arising after extirpation of the spleen. In isolated tuberculosis of the spleen, removal of this organ rests on a good basis. It is also indicated in all diseases attended with severe hemolytic processes; for example, hemolytic icterus, hypertrophic cirrhosis of the liver and atrophic cirrhosis (Banti's disease) in the first and second stages, but only as a last resort in the third stage. In pernicious anemia the good effects are transitory. Splenectomy is contraindicated in thrombosis of the portal vein and all disease processes caused by primary portal stasis. The urobilin excretion as a measure of the hemolytic processes in the body (Eppinger), Kleeblatt thinks, may eventually make clear the indications for extirpation of the spleen.

Gangrene of Bladder Following Vaginal Carcinoma Operation.—A long convalescence followed an uneventful operation for carcinoma of the portio vaginalis performed by Hisgen on a 28-year-old nullipara. After the operation the patient presented a septic appearance. The urine contained more and more blood, and by the seventh day had a strong odor. Bladder lavage was done and hexamethylenamin was administered. On the seventeenth day the lower end of the abdominal incision began to swell, and on the twenty-fifth day it broke open, and an incredible quantity of foul-smelling fluid was evacuated. A piece of necrotic tissue almost the size of a man's hand appeared in the wound and was removed. The palpating finger was able to touch through the fistula a catheter introduced through the urethra. It was thus evident that there was an extensive defect in the bladder wall. A retention catheter was inserted in the urethra and lavage several times daily was done. The temperature gradually became normal, the urine clearer, and the odor less noticeable. In three weeks the fistula in the abdominal wall had closed and the catheter was removed. Two months after the operation the temperature was normal. The patient was free from subjective symptoms, but was much emaciated. The cystoscopic examination, just before the patient was dismissed, revealed that the region of the trigonum was scarcely changed; both ureters were functioning normally. At the base of the bladder, next to the posterior wall, there was whitish, shiny tissue (doubtless scar tissue). In three months the patient had completely recovered. The primary cause of the condition was doubtless deficiency of the blood supply owing to the bladder wall having been detached to such an extent. Secondarily, an infection from the wound cavity in the pelvis destroyed completely the badly damaged portion of the bladder wall. Whether adhesions had roofed the space could not be definitely ascertained, but, in any event, the patient can now retain the same amount of urine as before the operation.

Treatment of Old Ulcerating Wounds.—Pürckhauer reports his success in using Drehmann's method of treating old ulcerating wounds, and regrets that the method is not better known, as the prompt results secured make it worthy of the widest recognition. The physiologic principle on which the method is based is the securing of a better blood supply by removing obstructing factors. The wound is scraped with a sharp curet, and then a circular intision is made in the surrounding healthy tissues down to the fascia, and even through the fascia, in case there are strongly supporting bones, as, for example, in the front of the leg. The edges of the wound are approximated by means of adhesive strips. After about five days the strips are removed, showing surprisingly good results. The base of the wound, which had presented a dead appearance, is covered with fresh, lively granulations, and the surface of the wound is considerably smaller. Fresh adhesive strips are applied and in a short time the wound is healed. Rest in bed must be strictly observed. Pürckhauer has thus succeeded in causing wounds to heal that had defied all other treatment for months and even years. Some of the ulcerating surfaces had been as large as a saucer.

The Abuse of Phenolphthalein.—In view of the fact that Fuld's warning uttered in 1909 does not seem to be heeded, Schliep calls renewed attention to the fact that phenolphthalein even in small doses of 0.1 gm. [the U. S. P. average adult dose is 0.15 gm.] may cause serious hemorrhagic nephritis attended by severe anemia. He regrets especially that phenolphthalein is used as an ingredient of biscuits, cakes, chocolate confections, bonbons, drops, etc., as these are given to children in indiscriminate quantities without a physician's prescription. Schliep has compiled a list of seventy-two proprietaries containing phenolphthalein, which he reports in full, and cites a few cases of severe phenolphthalein poisoning in Germany. One man of 59 had transient heart failure and nephritis after he had taken only 0.6 gm. in the course of twenty-four hours. In two other cases there were hemorrhagic nephritis and jaundice with serious collapse.

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*Intraspinal Medication. G. Neumann.—p. 401. Conc'n.
*Thermal Baths in Cardiovascular Disease. Grunow.—p. 406.
*Puncture Treatment of Anasarca. R. von den Velden.—p. 417.
*The Capacity for Synthesis of the Human and Animal Cell. Grumme.—p. 421.

Intraspinal Treatment Exclusive of Serotherapy.—The first instalment of Neuman's article was briefly summarized on page 143. The final conclusions of the article state that the outcome of intraspinal treatment of tuberculous meningitis with tuberculin and of tetanus with silver preparations is dubious, and that intraspinal treatment with magnesium sulphate is fraught with danger and can be replaced by other methods. Intraspinal administration of drugs seems to have benefited in treating meningitis with sodium chlorid solution, Ringer's fluid, optochin, and silver preparations. But the number of cases to date is too small for a conclusive judgment. A decision is most difficult in respect to the effects of intraspinal administration of arsphenamin. It has proved unquestionably successful in certain cases of neurosyphilis, but this generally responds well to treatment by the vein. The clinical symptoms in tabes and progressive paralysis do not always keep pace with the serologic improvement. To date there is no evidence to prove that tabes and paralysis can actually be arrested by intralumbar treatment, as some maintain. She concludes the article with the remark that the dangers of intraspinal treatment seem great, and out of all proportion to the benefit therefrom. It should be applied only after failure of other measures. A bibliography giving the titles of sixty-six articles is appended, including three from THE JOURNAL.

Thermal Baths with Cardiovascular Disease.—Grunow refers to thermal mildly saline, noncarbonated waters, supposed to be strongly radioactive, and discusses the indications and contraindications. An especially favorable influence may be expected with arteriosclerosis and intermittent limping; aortic defects; syphilitic vascular lesions; gout and obesity, provided the myocardium with the latter is functionally capable; and neuroses of the heart and vascular system. The waters soothe the tendency to spasm and dilate

contracted vessels, but special care is necessary when there is a neurotic tendency. The finest results have been realized in Raynaud's disease and similar conditions.

Puncture in Treatment of Edema.—Von den Velden comments on the dread which general practitioners so often display in respect to tapping anasarca. He gives the tracings from two of twenty-three cases in which the benefits from puncture were particularly striking. In one, the weight dropped 16 kg. in three days after puncture of the skin on both legs; in the other case 13 liters of edema fluid drained away in one day, to a total of 25 liters by the sixth day. The puncture is done with a fine trocar, 0.5 to 1.5 cm. deep, in a series of from five to fifteen rows of puncture holes, 1 or 2 cm. apart, on the foot or leg where the edema is the most pronounced. From fifty to eighty puncture holes were thus made on each leg, as a rule, and the results far surpassed those with incisions and cannulas. Small incisions heal up too quickly; large ones heal badly. The patient is prepared three or four hours beforehand by shaving the legs and wrapping them in cloths moistened with alcohol or mercuric chlorid solution, as he sits in an easy chair, the feet on a soft stool. The punctures take only a few minutes, only two minutes with practice, and the legs are then wrapped anew and the patient stays in the chair for at least a day. The dressings are changed twice in twenty-four hours, and no disinfectants are used. A little morphin beforehand may be advisable.

Assimilation of Inorganic Mineral Salts.—Grumme presents arguments to prove that inorganic iron cannot be assimilated, as also all mineral salts not combined with albumin, and he refuses to accept the statements in the literature to the contrary. He declares that the experiments and experiences on record do not justify the conclusions that have been drawn from them. Inorganic iron, he insists, has merely a stimulating action. The only iron or calcium that is assimilated is that in the food, as it is combined with groups of albumin atoms. Animals perish when they are deprived of organic iron, even although they may be getting large amounts of inorganic iron. It may be possible, he suggests, to add to iron-poor food some artifically prepared combination of albumin and iron which might be readily assimilated and bring the food up to the required level of organic iron.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 15, 1919, **2**, No. 20

*Examination and Diplomas. G. van Rijnberk.—p. 1513.
*Whooping Cough. B. H. Sajet and J. van Gelderen.—p. 1525.
Hospitals and Sickness Insurance. C. W. Vrendenberg.—p. 1546.

Examinations.—Van Rijnberk discusses what examinations are good for and what they should be. A passage from a recent work by B. Fischer is quoted which states that in Germany the incompetents are not weeded out by the examinations, "so that there is no one so feebleminded or incompetent (aside from the insane requiring internment) that cannot in time and finally pass the examination for the medical degree."

Whooping Cough and Its Prevention.—Sajet and van Gelderen analyze the statistics in regard to whooping cough at Amsterdam since 1890. Among the curious facts thus brought out is the increase in the mortality from whooping cough from 3.81 to 5.99 per cent. of the general mortality in 1890-1899 and 1907-1916, respectively. Another fact is the higher mortality in the northern and western parts of the country, and in the bleaker months. Children of the poorer classes contract whooping cough from their mates while quite young. Only 10 per cent. developed it during the school years, while the children of the well-to-do escaped it young, 37 per cent. acquiring it in school. As whooping cough grows less and less dangerous for a child after the age of 5, this testifies to the graver danger from whooping cough for the children of the masses. The mortality under 1 year was 42.3 per cent.; from 1 to 5, 55.9 per cent., and above the fifth year only 1.8 per cent. It is mentioned further that the mortality from whooping cough was three and a half times smaller in Jewish families than in others. In prophylaxis they urge the special importance of protecting the younger children against infection with whooping cough. Every child admitted to an institution for quite young children should be regarded as suspected of various acute infectious diseases until time proves the contrary. They advocate that compulsory notification should be enforced, and a service for combating acute infectious diseases should be organized, as also ample hospital facilities for whooping cough children.

Acta Medica Scandinavica, Stockholm

Jan. 23, 1920, **52**, No. 5

*Muscular and Reflex Segmentation of Abdominal Wall. G. Söderbergh.—p. 647.
*Changes in the Blood After Experimental Feeding with Spleen Tissue. A. Brinchmann.—p. 689.

Neurology of Abdominal Wall.—Söderbergh's article is in French. He reviews his previous researches and adds the results of new on the innervation of the abdominal reflexes, according to the segment of the spinal cord and roots involved. Eleven clinical cases of spinal paresis or meningitis are analyzed. It must be borne in mind, he says, that the motor and reflex symptoms are more objective than the sensory symptoms. Also that the extramedullary tumors are almost all located in the dorsal region of the cord. The extent of the area of rigidity is instructive.

The Blood on a Spleen Tissue Diet.—Brinchmann fed guinea-pigs and rabbits on fresh beef spleen, and devotes nearly a hundred pages to minute analysis of the changes in the blood on this diet. Within two hours after the meal the number of both red and white corpuscles is much reduced, the reds dropping off by 11 per cent. and the whites by 21 per cent. on an average, the lymphocytes by 37 per cent. The blood usually had returned to normal by the end of two hours.

Hygiea, Stockholm

Jan. 16, 1920, **82**, No. 1

*Operative Treatment of Embolism. H. Sundberg.—p. 1.
*Some Ancient Remedies. H. Kjerrulf.—p. 12.

Operative Removal of Embolus.—Sundberg reports another successful case to add to the 6 on record in which an embolus was removed from an artery (exclusive of the pulmonary artery), with a permanent cure. These 6 are the only permanent cures from arteriotomy in the total of 20 cases he has compiled, and in 4 of this group of 6 the operation had been done by a Swedish surgeon. In his own case the patient was a man of 63 with myocarditis and extensive arteriosclerosis, and the embolus was drawn out, and the artery sutured afterward with button sutures, the suture taken only through the outer and middle coats, using a fine curved needle and extremely fine silk lubricated with petrolatum. There was no bleeding, and the man has had no further disturbances from it since. Sundberg ascribes the lack of thrombosis later to the exact coaptation of the walls of the artery and the fact that no sutures entered the intima. The patient was the oldest one on whom such an operation has been performed, and the heart disease and arteriosclerosis and the long interval render the success all the more striking. In Proust's case the interval was fourteen hours and the thrombus was 12 cm. long; in Lundmark's case, ten hours, and 3 cm. long, and in the present case, twelve hours and the thrombus was 86 cm. long. The operation was done under local anesthesia and 0.015 gm. morphin. The longitudinal incision was 2 cm. long, just at the point of the bifurcation of the common femoral artery. The upper end of the embolus was drawn out and the spurting blood was arrested by clamping above, and clamping the deep femoral. The continuation of the thrombus in the superficial femoral was then seized with forceps and gently pulled out in one piece. Convalescence was retarded by a slight thrombophlebitis, but since then there have been no disturbances in the leg.

Ancient Remedies.—Kjerrulf gives a historical sketch of the acqua magnanimitatis of the seventeenth century, and of the use of formic acid as a drug, which was of still older origin.